



ΠΑΝΕΠΙΣΤΗΜΙΟ
ΔΥΤΙΚΗΣ ΑΤΤΙΚΗΣ
UNIVERSITY OF WEST ATTICA

ΣΧΟΛΗ ΕΦΑΡΜΟΣΜΕΝΩΝ ΤΕΧΝΩΝ ΚΑΙ ΠΟΛΙΤΙΣΜΟΥ
ΤΜΗΜΑ ΓΡΑΦΙΣΤΙΚΗΣ ΚΑΙ ΟΠΤΙΚΗΣ ΕΠΙΚΟΙΝΩΝΙΑΣ

FACULTY OF APPLIED ARTS AND CULTURE
DEPARTMENT OF GRAPHIC DESIGN AND VISUAL COMMUNICATION

Μιχαήλ Βουτσίνος 17014

Συγγραφή & Εικονογράφηση βιβλίου για εφήβους

“Mathemagic - Mystipysics”

Επιβλέπουσα Καθηγήτρια

Ελένη Μαρτίνη

Λέκτορας Εφαρμογών Πανεπιστημίου Δυτικής Αττικής

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ΧΡΗΣΤΙΔΗΣ ΔΗΜΗΤΡΗΣ

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“Είμαι συγγραφέας αυτής της διπλωματικής εργασίας και ότι κάθε βοήθεια την οποία είχα για την προετοιμασία της είναι πλήρως αναγνωρισμένη και αναφέρεται στην εργασία. Επίσης, οι όποιες πηγές από τις οποίες έκανα χρήση δεδομένων, ιδεών ή λέξεων, είτε ακριβώς, είτε παραφρασμένες αναγράφονται στο σύνολό τους, με πλήρη αναφορά στους συγγραφείς, τον εκδοτικό οίκο και ή το περιοδικό, συμπεριλαμβανομένων και των πηγών που ενδεχομένως να χρησιμοποιήθηκαν από το διαδίκτυο. Επίσης, βεβαιώνω ότι αυτή η εργασία έχει συγγραφεί από εμένα αποκλειστικά και αποτελεί προϊόν πνευματικής ιδιοκτησίας τόσο δικής μου, όσο και του ιδρύματος. Παράβαση της ανωτέρω ακαδημαϊκής μου ευθύνης αποτελεί ουσιώδη λόγο για την ανάκληση του πτυχίου μου”.

Ο δηλών
ΜΙΧΑΗΛ ΒΟΥΤΣΙΝΟΣ



MATHEMAGIC - MYSTIPHYSICS

Mike Voutsinos

Author - Artist

This amalgamation of a book combines both fairytales and education. Keeping the best of both worlds to produce a peculiar outcome.

This book offers a dissimilar fairy-tale from the classics, math problems and riddles to hone a teenager's thinking ability. This book makes learning more fun than the traditional plain books, because it has more pictures and an elaborate story to keep someone intrigued for a longer period of time.

Moreover all the problems require logic, so with the given formulas all minds should be able to solve them. Being able to sometimes solve complex problems or break them down to more digestible bites is beneficial for the child, because it will learn that all hard problems can be solved with reason and strategic approach.

Small steps at a time will help children understand better the concept of math and physics unlike the traditional methods of dumping information on them and hope they understand. Also coming in contact with more complex subjects at a young age such as the aforementioned will help mature the kid faster and even maybe kindle a spark for an interest down the path of life.

On the other hand, if a child is a daydreamer and its mind is always running to otherworldly adventures this book provides an interesting story to keep it entertained for hours.



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Chapter 1

The Tavern

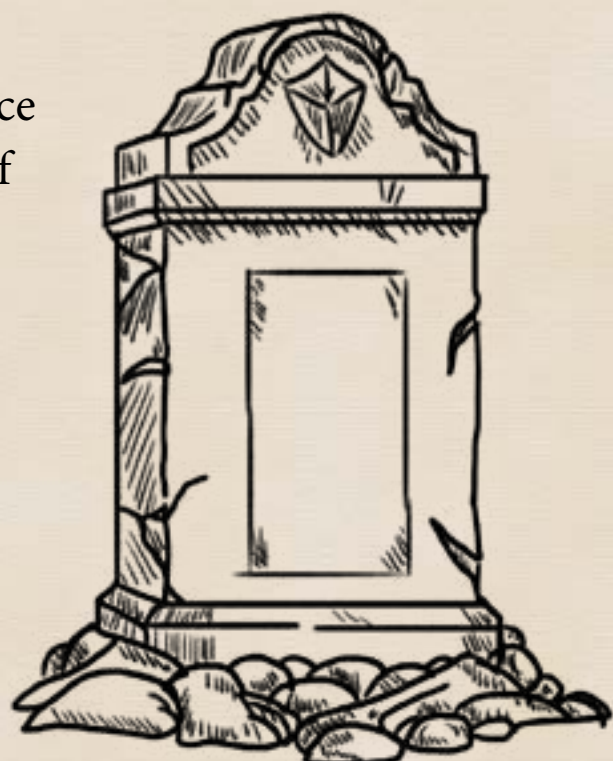


In the dead of night an army marches through the forest. *thud splash
Their arms... Heavy.
Their knees... Weak.
Their palms... Sweaty.
Their breath... Short.

Their path stained with blood and death. The troops are broken in many ways. Sadness... Anger... Regret... Relief... That is all they can express. Sadness as they lost their brothers in arms. Anger because they lost and got butchered mercilessly. Regret since there was no other way, sacrifices had to be made. Relief, the thought of having survived.

The unit walks in a straight line, despite their condition they are disciplined. A few feet ahead, someone is slashing the path clear. Ronan, the commander. From the deep darkness, a small ray of light

Q1. If the army marches 32 km in 8 hours, what distance would they cover in a day if they slept only 4 hours?

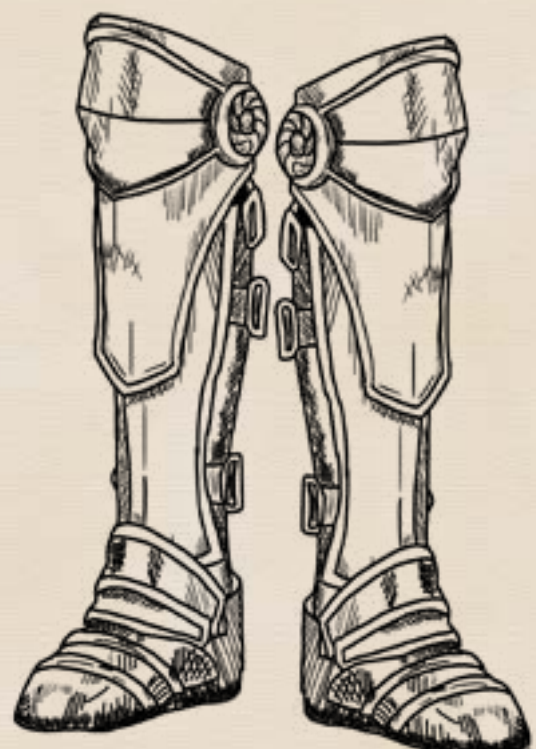


shines upon Ronan's dented chest plate. It's been 7 long hours of hiking. Finally, the troops are minutes away from a warm plate of food and a cozy blanket. There in the middle of the woods lies Greenleaf, a beacon of hope and civilization.

The sound of silence is distributed by gallops and moans **thud *thud *tuk *panting *neighs**. The legion entered the small town and caused some ruckus to the villagers. Almost all bolted to barricade themselves inside.

Some drunkards and foolishly brave were standing on the road staring at the bloody army. With a swift movement, Ronan dismounts his stallion **thud* and walks up to an old guy. His boots made a mess from the wet soil. His towering physique compared to the elder's fragile and rigid body was a scary sight. Ronan had no ill motives, he chatted with the mayor for a brief moment. The mayor pointed out with a shaking

Q2. If the the inn has 8 tables with 6 chairs each, what is its maximum capacity?



hand the “Blue Unicorn” Inn and Ronan made his way to that direction. Ronan and 2 guards entered the Inn. The guards stayed by the door as Ronan approached the tavern owner, an old former adventurer, Jak. Their conversation was short and ended with a hesitant nod from Jak. Ronan jumped on a table **thud* **THUD* and with his deep voice silenced everyone. Every customer was staring at him. Stares of annoyance, hatred and amazement.

“HEED my words and you might earn some coin. I am Ronan, commander of the 13th legion. My men and I were to accompany a royal, Iris Ahgni of Agrabah, from the port of Heidrion to her mansion in the woods outside Greenleaf.

We were ambushed by bloodthirsty Orcs near the mansion. The casualties were severe. That was no battle, that was a massacre. Princess Iris is

Q3. If the cheapest item on the menu costs 10 silver and the priciest items costs 1 gold, how much could the bill be at a full table.

protected by a powerful spell in her chambers, but alas, it won't last long. My strongest guess is during tomorrow's midday, when the sun is at its highest. I failed our mission and endangered the princess' life. Her death will start a war, the king of Agrabah is not known to be a merciful man... I'm afraid Albion won't survive a full scale assault. Thus I beg you to aid me and my men in this difficult situation, rescue the princess, rescue Albion. To those brave enough to join us there will be a handsome reward. 200 gold coins each and 10 more for every pair of Orc ears you gather. Our savings are low but we offer 30 gold coins in advance as a bonus as a precaution for armour weapon repairs and medical kits."

Ronan tosses the pouch on the table *clang. The villagers stare and laugh their hearts out. They swear, spit and throw stuff at him. Voices from the back can be heard.

Q4. If a 5kg sword falls from a ledge that is 2 metres in height, what is the speed it will hit the ground after 2 seconds?

Q5. Calculate the force the pouch hit the table if you consider a gold coin to weigh 8 grams.



“Go away lad, we ain’t having time for your shite”

“Bollocks, the King won’t pay a nickel”

“Twas time you leave”

The shouts go on... All but one table, a small odd party of 4 made no fuss about him. Ronan stands down from the table wiping his face and armour from the saliva and the lettuce leaves. As he was exiting he overhears their discussions about the matter and stands by the door for a mere moment. The party stands up silencing everyone with their mighty action.

Q6. I only point in one direction, but I guide people around the world.
What am I?

Q7. Some are cherished, some are hated, and even if lost they remain with you.
What are we?

Forward steps a lass, with a delicate physique, a beauty. Tall, slender with just the right curves. She is dressed in red, a classy red top hat with a big fluffy bright orange feather and small bones, a long leathery dark red trench coat, an elegant corset with a dim red hue and stockings with a tiny bit of red. On her right wrist there is a golden chain and on the left she holds a sceptre, wooden design ending in scythe. Her eyes are big, sparkling with the power of an inferno, complimenting her fiery lips. Her smooth tanned skin contrasts the chalky white skull she has painted on her face. Her dark long dreadlocks have rings and bracelets as accessories. She wears a tooth necklace and a choker around her neck.

Q8. What goes up and down
but doesn't move?

Q9. What is cut on a table, but
is never eaten?





The woman introduces herself and her fellow companions to Ronan. *“I am Delphine Laveau, this is Emerald, Joraphel and Chiron. We got motivated by your speech and that big pile of gold you mentioned and decided to aid you. Feel free to let us in on all the juicy details.”* Emerald, the Minotaur, complains a little bit about the shiny hooman. Emerald is the typical brute someone would expect Minotaurs to be, well built body, pronounced muscles, big heavy horns, short temper and lots and lots of fur.

His fashion sense isn't as honed as his other senses... Since he is basically walking around in his birthday suit with just a piece of rag to cover his... Minotaurhood. Emerald expressed his denial in a not so friendly way, *“I work for no man who can't prove his worth, fight me right here right now!”*. Ronan tries to avoid the fight and ignores him. Emerald craves the fight, insulting and taunting Ronan. Ronan eventually gave in to

Q10. Solve for x and y

$$2^{(x-y)}=4$$

$$2^{(x+y)}=8$$

Q11. What goes on four feet in the morning, two feet in midday, and three feet in the evening

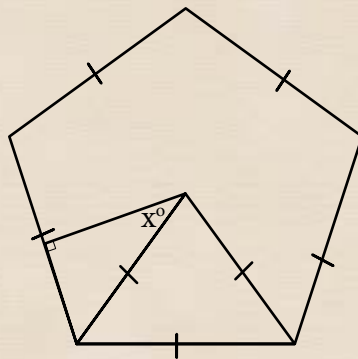




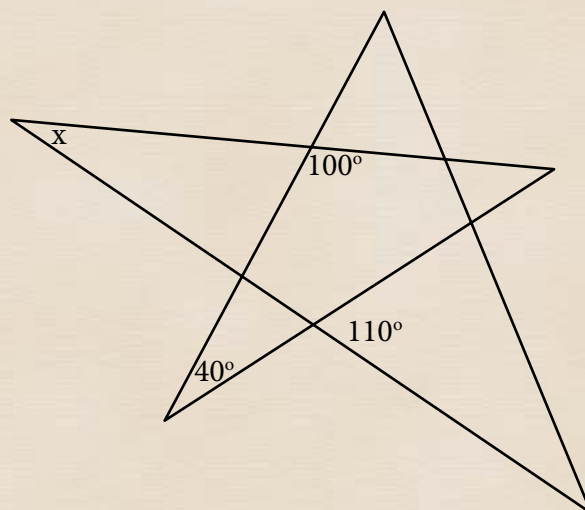
the temptation. With a hypersonic fling of his sword the Minotaur that was towering over his head is now laid flat on the ground. In a blink of an eye everything was over, not a single drop of blood on Ronan.

The whole Inn stares in fear and astonishment *GASP. Ronan nods at the guards and a shady figure walks in. A man... A creature... Dressed in black from head to toe. A big floppy hood covers his face. Slowly Ronan's follower raises his hands muttering something under his breath, then suddenly Emerald is gasping for air as life entered his still-warm body. At the same time, Delphine Laveau feels a burning sensation on her left shoulder and grunts in pain, Chiron the Centaur

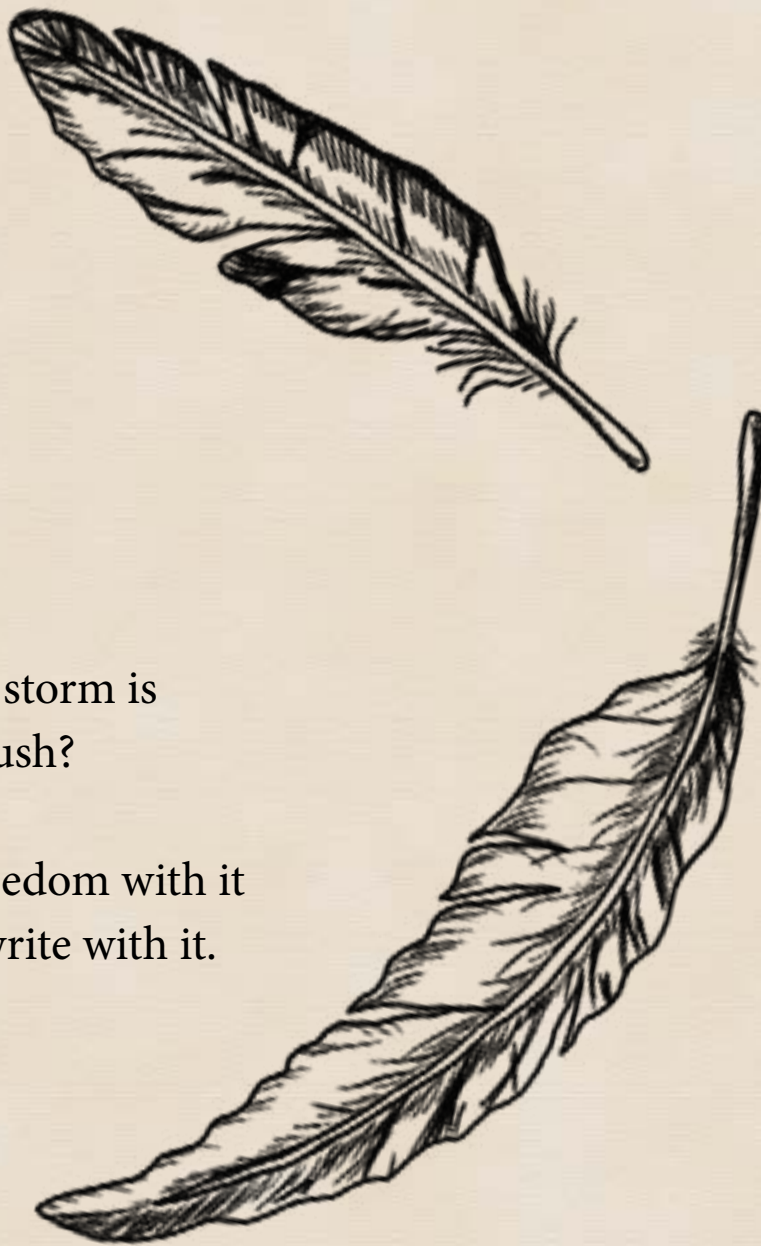
Q12. Solve for x°



Q13. Solve for x



rushes to Emerald's side. The hooded figure lowers their hands and exits the Inn. In his place is now a pair of huge pitch black feathers and scratches on the wooden floor. Ronan's last words were "*Start now, head north, we will bring reinforcements as soon as possible*" and left the Inn. As the door opened, shadows devoured the lights, leaving everyone in the silent darkness.



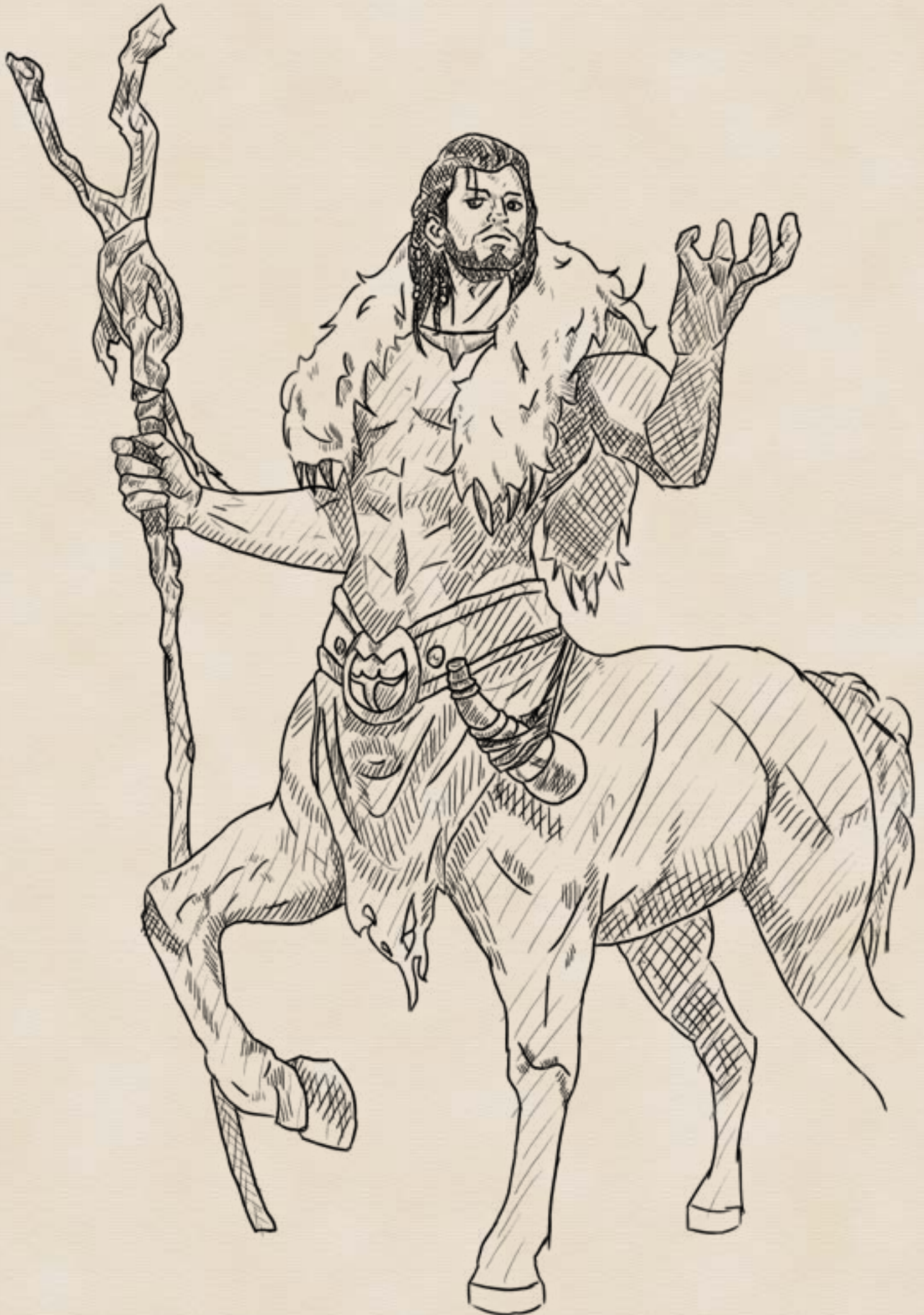
Q14. What kind of storm is always in a rush?

Q15. Birds soar freedom with it and people write with it. What is it?

Chiron helps Emerald stand and suggests that the group should head out and refill their medical kits before the shops close. Chiron has a gentle look on his face, kind and approaching. His short dark hair, trimmed beard and his profound jawline can't compare to his smile though. And those eyes... Ahh! those eyes, as dark as charcoal, a single glance can set someone's heart on fire... He stands with pride as a grey furry scarf brandishes in the air.



Q16. You have two hourglasses. One empties in 7 minutes. The other empties in 4 minutes. How can you use these two hourglasses to measure exactly 9 minutes?



Last but not least, is Jorahel, the Jewish paladin. His lust for money rivals only his need to twist his Bohemian moustache. He thought it looked cool on a bard and decided to replicate it... Now he wanders the streets wearing white t-shirts with extremely low neckline and white rigid leather pants... Good Lord!

Q17. What are the values of A and B?

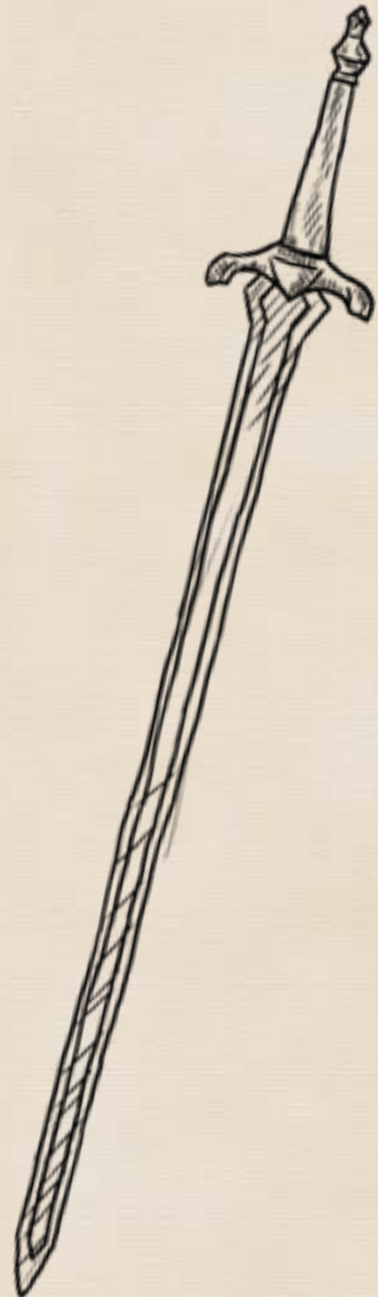
$$A+B=A*B=A/B$$

Q18. Solve for x and y

$$x^2-8x=-15 \quad x^2+y^2=25$$

$$2x+y=10$$

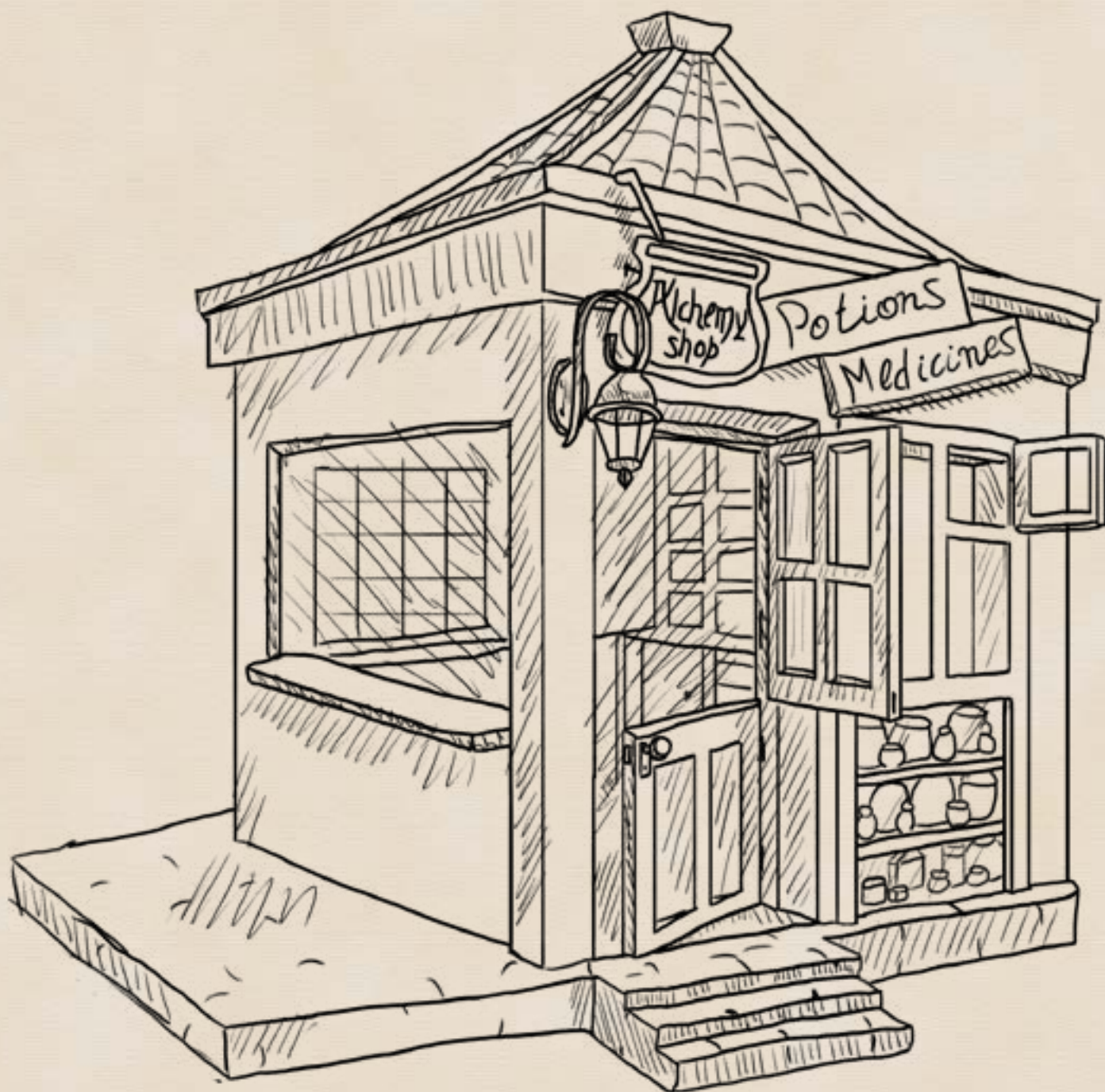
$$x+y=?$$





Chapter 2

Alchemy Shop



Our heroes move on with their new quest as fast as they can manage, organising equipment, preparing some food, buying booze... Feeling confident they exit the Inn and head to the northern gate. There beside the huge pillars of stone and moss was a small alchemy shop, Mr. Gibble's shop. Mr. Gibble is a gnome, old, slightly grumpy, but has many wares and knowledge on his wrinkly back. Laveau spots Mr. Gibble trying to lock his shop and she quickly rushes to use her charms to persuade him to open the store for a few more minutes, so the group can refill on potions. Mr. Gibble readjusts his glasses and groans, but succumbs to her... Curvy physique. Mr. Gibble opens the door and lights a match. Aimlessly he's trying to light the candles in the room, his hands shaking so much that he can barely keep the match from going out. Laveau steps in to light the candles with her magic. "Show off" mumbled Mr. Gibble as he stepped behind the counter. Emerald rushed in like a maniac and started asking about potions.

Q19. If 4 potions cost 30 gold and the ingredients to craft a single potion cost a total of 6 gold, which option is more beneficial to the party?

“Potions, potions old man, do you have any?” he barked. “Lotions?!” replied Mr. Gibble. Turns out that Mr. Gibble had lost his hearing from one ear completely and his other ear is following the same path. Emerald kept shouting. “POTIONS!”, “P O T I O N S”, “We want POTIONS!”. For a mere moment Mr. Gibble’s look changed, now his totally expressionless face has a huge smirk. He searches for a while and then presents a flask with a vibrant blue liquid. “This will do the trick, I know it works for me and me wife” he exclaimed happily. Laveau blushed and explained once again, more civilised this time that they are not looking for “under the sheets” potions, but for stami... Health potions.

Q20. The potion of healing heals 2d6. The scroll greater restoration heals 3d4. Which one should i choose and why.



As Mr. Gibble is searching for health potions the rest of the party enters the shop. On the counter are now 4 bottles, from left to right, a small flask, a medium flask, a big flask with a blood red liquid and the flask with the blue liquid. Laveau is suggesting they buy all the healing potions with Ronan's money, but is cut short by a loud snarl.

The Jew hugged the coin pouch, hissed and tried to run away. Luckily his rabies-thick saliva got in his eyes and he knocked himself out on a chandelier. After the purchase Mr. Gibble swept them out with a broomstick and curses.

Q21. I have to work every day, every second, every hour, every minute, day in day out. What am I?

Q22. It belongs to you, but other people use it more than you do. What is it?

Chapter 3

The Magic Forest



The night was still young and our 4 brave heroes wandered through the forest. This forest is a gate to the Fey world, so it's overflowing with magic. Fireflies of various colourations with the northern lights drive away the darkness, dimly lighting the woods. The leaves sparkle with every gust of wind. The twilight shines on the rocky track, marking it even in the shadiest crypts. After a few hours of trailing, our brave heroes reach the non-magical sector of the forest.

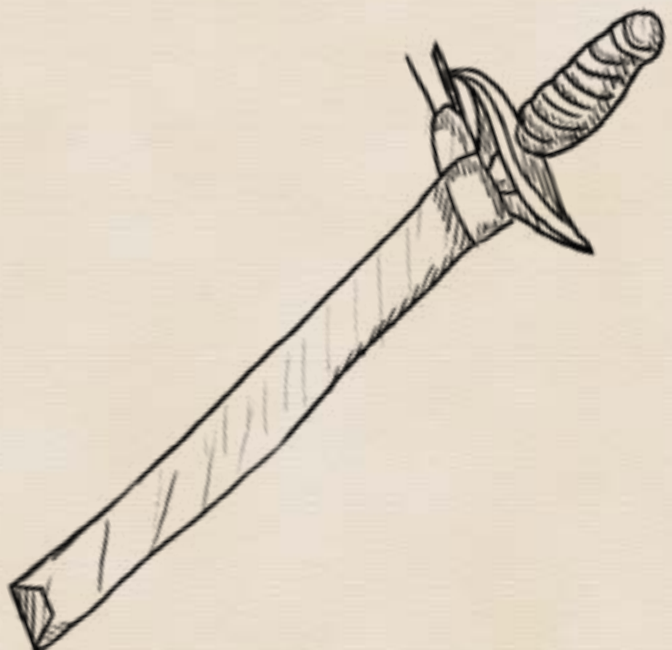
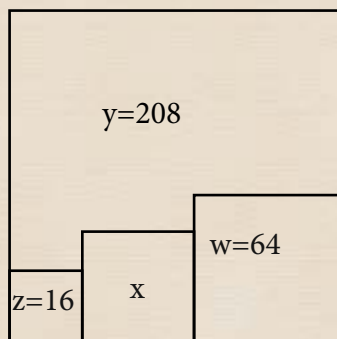
A loud and agonising scream disrupted the peaceful silence alerting everyone. They all acted out of instinct and formed a circle. It's been 3 minutes since the loud scream, not a single hostile in sight. Lavaeu broke the formation to investigate some bushes. As she got closer and closer a foul stench surged her nostrils. Even though her disgust was visible, she carried on. Then, she saw it. Emerald was lying there motionless in a foetal position. His cold corpse was the source of

Q23. Where can i store more gunpowder, in a 1,6x1,6 crate or in a 1,6x2 barrel ?

that smell. Decomposers had already worked their way to his vessels leaving a dried empty husk behind. That was no ordinary coincidence. There was definitely magic involved, powerful magic. A few sorrowful minutes is all the extra time the gang can spend with him, besides death is always by the side of an adventurer.

As they made their way they spotted something. Something blue. Something definitely not from here. Something clumsy. Definitely not a threat. It turned out to be an air Genasi looking for mushrooms. He was wearing a brown leather top in contrast with his pale blue body. He has a slightly buffed torso for his size. As far as accessories, besides his sapphire eyes, he rocks a golden acorn chain around his neck and bear hide bracelets around his wrists. He wields a scimitar, but he does not look that experienced. His cotton trousers are nothing out of the ordinary, just a little muddy like his boots.

Q24. Calculate the area of x .





He greets the party with joy to break that awkward silence. *“Hello there, I’m Artúr Keth, a sorcerer. I’m gathering mushrooms for some potions and brews. What brought you here to this side of the forest?”* Delphine Lavaeu steps forward *“We are on a mission, a royal needs our help.”* Lavaeu turns her back to Artúr and regroups with the gang. A few moments of indistinct chatter and the whole party asks Artúr to join them in their quest. Artúr accepted the offer without giving it a second thought. The new group headed North, but exhaustion slowly caught up with them and had to call it a day.

Q25. Artúr’s basket has 10 large mushrooms 6 potatoes and 2 carrots. A single serving of soup requires 3 mushroom half a carrot and 2 potatoes. How many servings can he cook? Will the servings be enough for everyone ?





Chapter 4

The Beast



They set up camp in a slightly empty and spacious area of the forest. I guess, sleeping on dirt is better than sleeping on rocks and bushes. Lavaeu poofed a hut out of thin air, while the rest are left with an egg on their face. She wiped that smirk from her face and offered them a place in the hut in exchange of... a strand of hair. Wrapping things up, they all slept like logs. A loud howl, deafening screams and cries in despair woke them up. They bolted out of the hut slightly disoriented, but combat ready. Lavaeu was holding a pillow, the jew had his sleeping mask on, Artúr was still mummified in his weird sleeping blanket and Chiron... Chiron was still sleeping. A few organising moments later everyone is geared up, including Chiron, and alert.

The cries went on and on, getting louder and louder every time. Chiron takes the lead and stealthily follows the sound. The others are quick to follow him into the glade. Rising from the shades into the blueish

Q26. A mother has six children and five potatoes. How can she feed each an equal amount of potatoes? Do not use fractions.

moonlight is a wyvern. Not an ordinary wyvern, a Monarch wyvern. As rare as hen's teeth, it was there standing in all its glory. Its scales shined brighter than the night dimly illuminating the surroundings, its eyes big, fierce with a slit like iris that looked like a million stars. Its wings... Tied up with a rope...

Chiron was quick on his insults, cursing the hunters for going after such a scarce specimen. He cooled off pretty easily though and headed towards the trapped beauty. The wyvern was howling and struggling to get away. Chiron, in his excitement, didn't walk as calmly as he thought provoking the beast. In an instant Chiron had a trail of blood running down his arm. The wyvern lashed its tail to keep the stranger away. Lavaeu and the others made a move swiftly aiding their friend, who is now dead in his tracks. Chiron exhales and looks back to his group nodding that everything is going to be alright. It's all up to him

Q27. I have a tail, but I'm not
a mouse, I have scales but
I'm not a fish, I have
wings, but I'm not an
aeroplane.
What am I?


now. While everyone is slowly moving away, the bloodthirsty tail-whips slow down. The wyvern probably tired itself or accepted defeat. Chiron freed the beast with little to no struggle and to no one's surprise the wyvern fled the scene with no grace at all, as it hit a few trees.



Chapter 5

Yellow Brick Road





Slightly sleepy the gang follows the trail through the woods. A small trail of pebbles and grassy moss can be seen between the thick roots. The moss lights up with every step emitting a tiny amount of greenish light. Fire flies with all sorts of colours give an otherworldly atmosphere. After a few minutes of trailing the path the fluorescent lifeforms weaken, leaving the sun to brighten up the day. The sun is now high up in the sky, not hiding behind mountaintops. Lavaeu is now leading with an intense pace. Parkouring through the woods, jumping and sliding from bushes and branches they find themselves on the short cliff. *“That must be the road to the mansion!”* exclaimed Lavaeu. The cliff is steep, defining the terrain. On the left a rocky slope, on the right forest and in the middle a yellow brick road. The road reflects the trees and the mud, as well as the bright blue sky... Magnificent... The sun’s reflection on the road is a nuisance to all, but they carry on with a steady pace.

Q28. The day before two days after the day before tomorrow is Saturday. What day is it today?

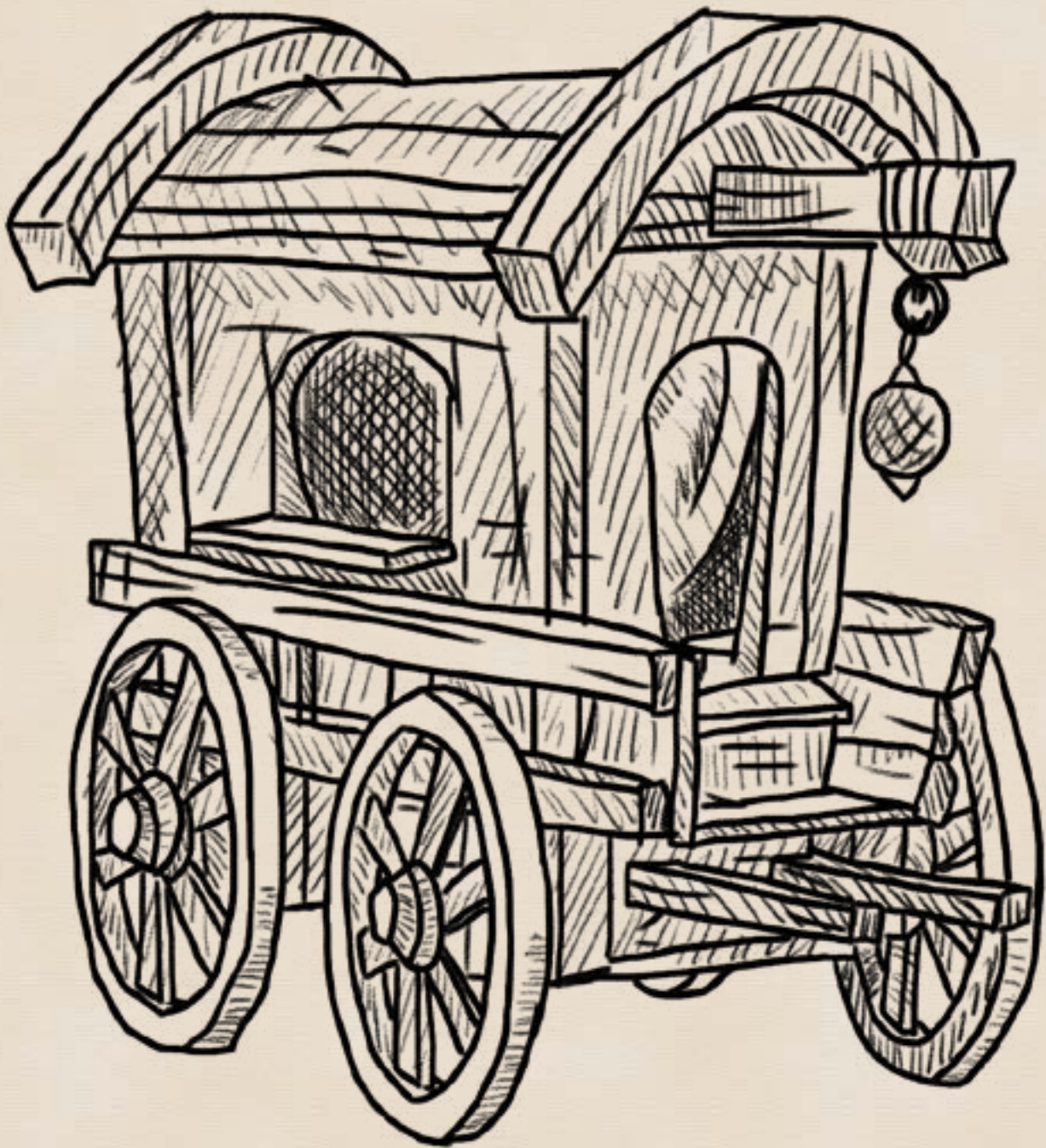
Q29. There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there?



Lavaeu got tired and decided to use her feminine charms on Chiron. Turns out centaurs don't mind at all. To be honest, I think, he enjoyed it more than he should. Lavaeu is screaming on top of her lungs with joy, the air is rushing through her dreadlocks, she is doing the hand surfer on the wind. She is riding Chiron... Mounting Chiron like a warhorse. Chiron spots an abandoned chariot a few feet off the road and takes a small detour to investigate. The Jew thinks there might be gold inside and jumps in the back head first. *"Guys there are like 6 rolls of silk, a barrel or so with ale and a skeleton here"* he barked. *"Ooh boy! Would you look at this fine piece of craftsmanship!"* said with enthusiasm as he picked up a small wooden box with weird markings. *"So you thought that picking up a box in an abandoned chariot with a skeleton inside was the right choice?"* questioned the group. The Jew casually opened the box to reveal a shiny diamond and a copper ring. The Jew hid all the barrels and silk in the woods *"just in case"* and rushed in front of the others.

Q30. One roll of silk is 1m in height and contains 91,4m of silk. How much money would they make if the party sold the six rolls of silk, if the price of silk is 26 gold per square metre?





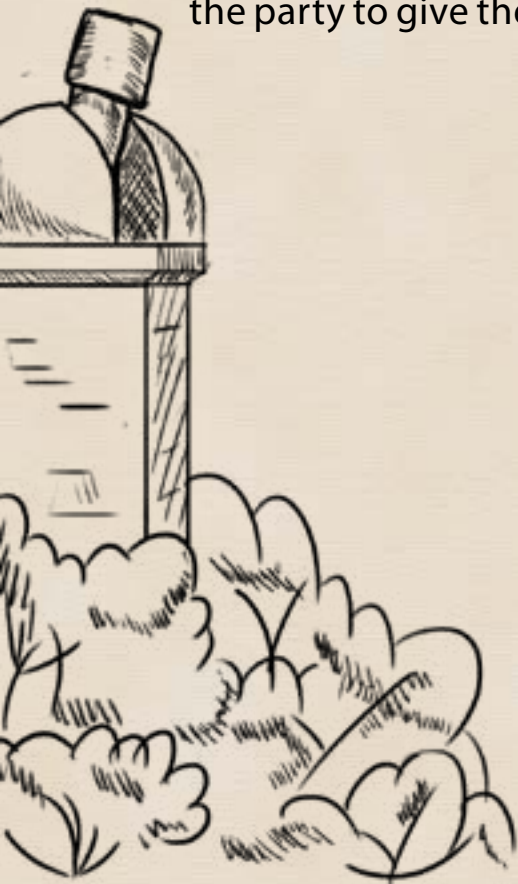
Chapter 6

Storming The Castle



The trees seem more distant now, the chariot is far behind them, and the sun is at its highest. Sweat droplets hish, when they fall on the golden bricks. Finally, the castle can be seen. It's big and spotless, the walls don't look damaged at all. There is no sign of battle or even a hostile act. The gang acts on their toes and hides in some bushes to make sure everything is fine. A few intense minutes pass by and everyone is on high alert, searching for someone or something. Just as Artúr made a move 2 Orcs were spotted patrolling the castle. He casts fly and heads towards a window, passing over the guards without alerting them.

As he is getting closer and closer to the window he manages to locate another patrol on the left of the castle and a few guards inside the garden slacking off. Artúr manages to communicate with the rest of the party to give the go signal. Artúr dispelled "Fly" and fell from the sky



onto the Orcs slamming their face flat on the ground. Chiron charges with might, stomping the Orcs. As if that wasn't enough, Laveau slits their throats. As the bloodshed ends, the other patrol units collide with the party surrounding them. That party flees into the woods, hoping that the dumb Orcs would follow them. The thick trees would make it difficult for them to move freely and thus gaining the upper hand in this troublesome situation.

Chiron was the first to try and attack through the cover of the forest. He lifts his hands, he starts shaking, his fingertips are blue from cold, a thin frosty layer covers his palms, suddenly three light blue knives manifest in front of his fingers. In a blink of an eye the knives launch at the Orcs, stabbing them on the shoulders. Chiron looks back at the party delivering his killing line as the knives explode and flash freeze the surroundings, *"I gave them the cold shoulder"*. The hostile popsicles

Q31. If an enemy is 35 feet in the air and you are 40 feet away from him on the ground, can a spell with range 30 feet reach him? If no how many feet should you move in order to reach him?

are shattered one by one with little to no effort, but to their excitement someone noticed the absence of the units and things got out of hand in seconds.

The main gate shocked the ground, as it slammed open and unleashed an army of raging Orcs to the battle field. “*WE ARE DOOMED, DOOMED*”, cried the Jew. Fear and despair overwhelmed our heroes as more and more Orcs came out. High up in the sky, above the clouds a serpent stalks the group. A loud shriek disrupts the pending slaughter. The clouds tear apart, releasing the trapped sunlight to blind the Orcs. A huge shadow protected the gang from the sunlight. Screaming louder than thunder the wyvern landed in front of the group whipping and lashing against the Orcs tearing their numbers down within seconds. Once their numbers dwindled, the group charged on slicing and dicing as they made haste to the mansion.

Q32. If Chiron, the 950 kilos centaur, is running at a speed of 12 metres per second, collides with an 113 kilos stationary Orc, calculate the V' of Orc, if Chiron's $V'=7\text{ms/s}$ after the impact.



Chapter 7

The Search



The bloomed garden looked nothing like the battlefield outside, it was peaceful, too peaceful to be exact. Sadly the party didn't have much time to admire the fully bloomed flower garden, the white stone pavement and the royal fountain. They charged straight to the main gate, tearing it down from the hinges. *CRACK *BOOM the door slams the stone floor, allowing them to continue. Everyone is now more tense than ever, as the number of foes remains unknown. The dimly lit corridors of the castle echoed every step, every heartbeat and every breath. The stairs to the cellar were more damaged than the rest of the interior, a keen tracker would easily pick up those tracks. The party acted like the professionals they are and went to the upper floor. To their luck all princesses are held on the top floor instead of the cellars. Orcs probably did all those markings as they were in a hurry to get some booze... Nearing the top floor, snarling and hissing devoured the echoes. The group stealthily approached the open door, they could

Q33. I am easy to lift, but hard to throw. What am I?

Q34. What gets broken without being held?



barely see the inside, but they instantly knew what was going on. There is no mistaking it, that vile stench, the little short laughs, the noise... GOBLINS! A quick conversation with their eyes is all it took for them to coordinate and plan the slaughter. One by one the 6 goblins met their maker. The party didn't use any spells as the bloodlust that consumed them kept repeating over and over again, "*BUTCHER THEM*". This wasn't an uncommon event, as adventurers sometimes follow their instinct instead of logic. This was a reckless act, for sure, and every action has consequences...

Screams echoed from the chamber, the blood rivered down the stone stairs making them slippery, bodies left and right, guts speared, limbs torn apart. The air had the smell of iron. The party is standing victorious over the havoc, slowly calming down, breathing returning to normal, muscles relaxing and finally the ability to observe non hostile figures

Q35. How many foes you must obliterate in order to craft a 5 kilogram sword if you consider they have 4 grams of iron in them?



returns. Who could have guessed? The Princess was there the whole time, watching as some more random people barged into her home and started killing the random goblins who barged into her home a while back and killed all her people. She felt confused, the look on her face was happy, yet terrified. She could not be sure whether these new guys were here to help or make sure she was *“dealt appropriately”*. Laveau’s soothing voice filled the room, *“Don’t worry ma’am your knights in shining armour have arrived”*, she exclaimed, while posing heroically on Chiron. A faint giggle escaped from the Princess as she stepped forward to bow. *“I am Iris Ahgni of Agrabah, the only heir to the throne and head of the family. I’m grateful, thank you for saving me from those horrid creatures”*, she kindly said. Before anyone could say a word, some stones from the ceiling fell to ground shattering in a million pieces.

Q36. I have mountains, but I
am not tall, I have water
but I am not wet, I have
cities but not people.
What am i?



The dust blurred everyone's vision, but a few hints of glimmering light could be seen. The magic barrier that was protecting the Princess in her chamber was no more. The light died down and the Princess was finally free, the seed of getting out had planted its seed. The Jew reached out his hand for her to grab, "*Come on, Ronan is waiting for us*". That line, this simple line was enough to trigger a panic attack. Iris' bright eyes darkened as she stared into the void, her hands started shaking, her brain shut down, she could only scream "*NNNNNOOOOOOO, GET AWAY FROM ME*", she cried, as tears fell from her cheek. Everyone was startled. Cold sweat was running down their necks. Slowly they came to piecing the puzzle all together. The extreme details, the exact time it would take them to travel, the slightly bruised garrison and the fact that Ronan wasn't here. Mumbling all together trying to explain the situation that they work for Ronan, but not actually work for him, which made things unclear. I think they meant to say that they didn't

Q37. An object moves along a straight line with an acceleration of 2 m/s^2 . If its initial speed is 10 m/s , what will be its speed 2 s later?

$$v = u + at$$

know his evil deeds when they took the quest or they don't want to take part in his actions? I don't even know at this point, everyone has another shady motive to keep going. Laveau is after hair... Chiron is trying to remake new memories, the jew is hoarding gold like a dragon and Arthùr... I think he wants mushroom soup... ?

- Q38. A ball is thrown upwards and it goes to the height of 100 m and comes down.
- a) What is the net displacement?
 - b) What is the net distance?

Chapter 8

The Twist



Interrupting the mumbling was Ronan's deep voice, "I see your mission was a success", *clak *thud said as he threw 3 leather pouches in front of their feet. He squinted his eyes as he scanned the room, something was missing, he could feel it, but he was not quite sure what it was. "I thought I hired a Minotaur... Nah, it's just my imagination". His monologue was interrupted by a barrage of questions "Why is she afraid of you", "What did you do to her", "You assaulted the Palace", "What are you doing here"... "Take your gold and leave", said Ronan with a serious tone. "No, we won't. We are adventurers. We have standards. We are not mercenaries." Laveau said, "We demand answers" and she prepared for battle. Ronan threw 4 more pouches, "Tripled the amount, hope this satisfies your questions". You can feel the tension in air Laveau, Chiron and Artúr are observing Ronan and his mage... And the jew is reaching for the money bags... "NNNOOO", the gang shouted united and the jew got his act together and power posed with others leaving the gold behind. Meanwhile,

Q39. What is so fragile that saying its name breaks it?



the Princess was silently trying to open a hatch beneath her bed. The door was heavy, as it was made from the same material as the floor to camouflage. The handle would be accessible only if someone moved a certain stone. Ronan states again, with less patience in his voice this time, *“Your mission was a success take your gold and go”*... *Silence... *“So be it”* and draws his sword.

The moment he unsheathed his sword, the hilt turned light blue illuminating his armour. He slams the sword on the floor unleashing a shock wave disrupting the group’s formation. Artúr wasn’t affected by it as he was levitating a few inches above the floor. With only a second to think, Artúr charged head first at Ronan only to be tossed on the wall like a bag of human intestines. Ronan’s fists were cloaked with the same blue light as his sword, discharging electricity to the air with every swing. The Jew stood up and headed to battle with Ronan.

Q40. What can run but never walks, has a mouth but never talks, has a head but never weeps, has a bed but never sleeps?

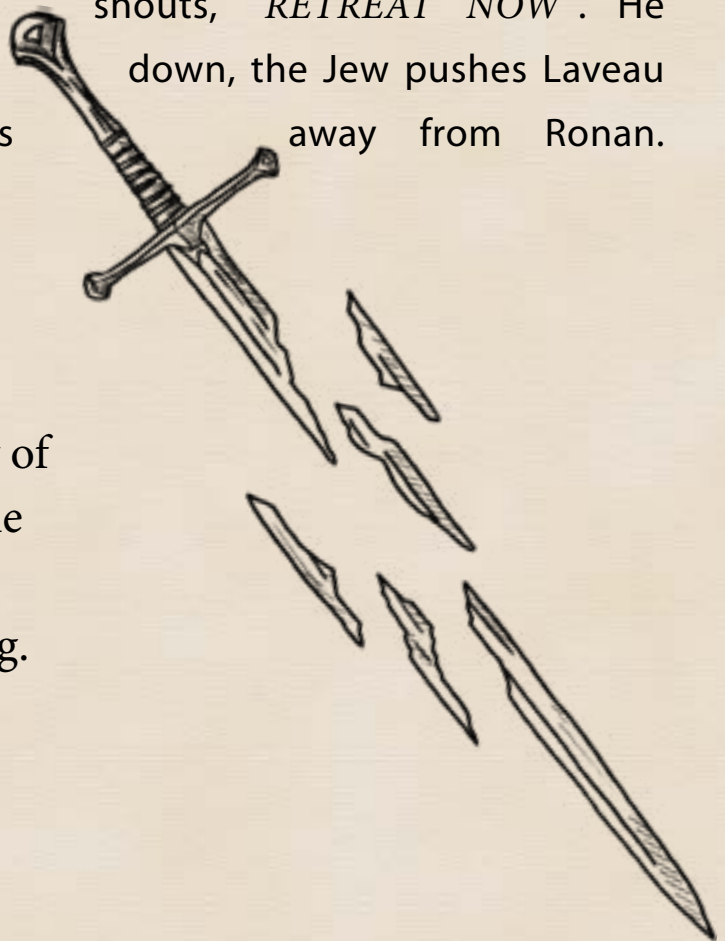




Sword vs Fists. One swoop... That was all it took... For Ronan to shatter his sword in a million pieces. Chiron and Laveau fell like rocks and came up with an idea. Chiron casts ice knife and targets the hooded figure, while Laveau casts silence on him. To their surprise he dodged the knives with relative ease yet the explosion did wound him a little bit. Being unable to shout in agony Ronan's spell caster lifted his arms and took off his hood revealing pitch black skin, purple eyes and feathers... a Kenku. As feathers fell from his hands they start to sizzle and burst into flames forming rays that attack Chiron and Laveau.

Artúr managed to get up and spot the princess trying to open a hatch beneath the bed. With a flick of the wrist Artúr creates a burst of air and shatters the door. He shouts, "RETREAT NOW". He grabs the Princess and jumps down, the Jew pushes Laveau into the hole and steadily backs away from Ronan.

Q41. A train 120 m long is moving with a velocity of 72 km/hr. Find the time it will take to cross a bridge that is 3 km long.



The last to remain was Chiron who couldn't fit inside the hatch. Chiron fought against the Kenku and Ronan, he bravely sacrificed himself to buy time for the others. Chiron took one blow after the other, blood running down his torso, seeping into the floor cracks. Almost out of breath with legs broken, joints dislocated, he gathered his strength and sealed the hatch with his body. In his ears echoed for the last time Laveau's screams as everything went blurry, dark and silent.



Q42. Calculate the total force on the object.

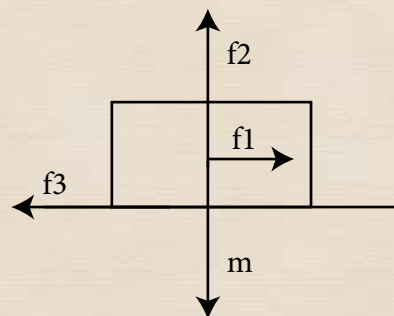
$$g=10\text{m/s}^2$$

$$f_1=45\text{N}$$

$$m=12\text{Kg}$$

$$f_3=20\text{N}$$

$$f_2=?$$



Chapter 9

The Fall



Down below, our heroes mourn the loss of a comrade, a friend, an adventurer. Their feelings are once more left aside as they know that death walks besides every adventurer. As tears dry on their cheeks, they tunnel through some old ruins that the mansion was built on.

A giant door blocks their path once more. A humongous skull is decorating the gate. As they get closer and closer, the Princess lights up a torch, only to reveal that the group is walking on bones. She casually picked two skulls up and set them ablaze. The staggered party is staring at her, the skulls are enveloped in flames, yet her hands seem fine. Just in case, they all stayed back and whispered about now mentioning anything. Iris threw the skulls in the eye sockets of the door. The earth started to rumble and shake, dust and rock chips fell from the ceiling. The skull opened its mouth inviting them in.

Q43. I turn once, what is out
will not get in. I turn
again, what is in will not
get out. What am I?

Chapter 10

The Library



A light breeze kissed gently everyone's face. As the gate opened wider the darkness it unleashed devoured the light of the torch. Iris knew which path would lead them to safety. She tore her dress and fashioned it into a rope and tied it around everyone's waist. Leading the way through moist rubble. Her pearl white skin glowed with every tiny beam of light. After trailing for what it felt like 30 minutes the darkness was growing weak. Hints of light reflected on the wet surface of the rocks, water droplets sparked with every interaction with light, the whole thing looked unearthly. Magnificent scenery, even in the dark, is one of the perks of being an adventurer. Nearing the end of the tunnel, fluorescent moss outlined a stone door. "PUSSHHHH", howled Iris, "COME OOOONN". The door opened before them as dust filled the air. Deep underground, hidden from the outside world through tunnels and piles of bones is an ancient library.

Q44. What building has the most stories?

Q45. What five-letter word becomes shorter when you add two letters to it?

Iris said that they have to stop Ronan, as she tries to find a certain book. The exhausted party gave little to no attention in her ramblings, trying to get over what happened. She finally found that book she was after. Rushing through the pages she dropped the book on the stone floor *baamm, the sound echoed alerting the party. Iris clumsily approaches the party showing them one picture of a shiny hourglass. The sand was powdered quartz, the glass was made by a lava golem, the wooden beams were from Morph wood, one of the rarest woods in the nine realms. *“This particular item can shatter time and space, causing the planes of existence to merge”*, she said. *“Moreover, that particular item is still in my chamber. Ronan will definitely find it, but this is half of our worries”*, she continued. *“Dwell deep beneath the library. You will find a waterfall. There is your last chance to stop Ronan from unleashing the power of the hourglass”*, she explains. The gang decided to aid her again for the right price. This time the reward wasn't money, but a chance to travel and visit her homeland. She gladly accepted and pointed towards the exit of the library guiding them to their objective.

Q46. There are two sisters; one gives birth to the other, who in turn gives birth to the first. Who are they?



Chapter 11

The Catacombs



Leaving the library, the scenery changed drastically. From the dusty books and dimly lit corridors to bug filled rooms that lit up the room. Those bugs glowed light blue, transforming the ruins into a nicer place. The next room was completely dark, the light from the bugs faded a few feet in. It was enough for them to notice some carved runes on the floor that read “step” on elvish. When they stepped on the runes, a purple light devoured the darkness. Nearing the end of the room, they could see a giant arch pulsing some form of energy. Runes on the side read ‘portal’ in dwarvish. The portal sucked them in as they reached out. The portal led to another side of the underground tunnels. Torches gave off the needed light so as not to stumble on every rock on the path. From wide to narrow paths to barely able to squeeze through cavities they made way deeper inside. They hadn’t encountered something challenging in a while now, alas a challenge came to them. A two way passage. On the left the walls had scratches

Q47. Calculate the distance from the library to the catacombs, if our heroes travelled at a speed of 2m/s for 30 minutes.



and on the right scorch marks. The ground had piles of bones scattered as far as the eye could see. Artúr decided to lead the way and marched on the right.

His path was cut short as giant spikes turned him into a shish kebab. Blood running down from every stab point. The Jew and Laveau were left speechless, as a mere second ago Artúr was somewhat cheerful. As if losing a friend wasn't hard enough, now a second soul is gone.

Being emotionally overwhelmed, anger came out first with a few tear drops, they ran to the opposite side of Artúr's. The screams echoed in the tunnels disturbing the ruins ahead. The corridor was narrow but long enough for a human to go by without any issues. Lavaeu was faster, she jumped out of the corridor, landing in front of a portal once again. The Jew didn't see the four steps and fell like a starfish on the

Q48. calculate this:

$$\begin{array}{r}
 6+ \frac{\quad\quad\quad 42}{\quad\quad\quad\quad\quad} \\
 9- \frac{\quad\quad\quad 351}{\quad\quad\quad\quad\quad} \\
 18+ \frac{\quad\quad\quad 7}{\quad\quad\quad\quad\quad} \\
 1- \frac{\quad\quad\quad 428}{\quad\quad\quad\quad\quad 603}
 \end{array}$$

floor *tuuff, Laveau giggled and helped him stand. This portal wasn't as calm as the previous one. Energy surged out in waves, blasting down rocks and skeletons. 2 skeletons with rusty swords emerged from the portal. The undead took a battle stance and waited. The last of our heroes power-posed to intimidate the dead, but to no use, dead fear nothing. The Jew drew his sword, his eyes lit white, the blade started vibrating, a white glow covered his sword, he charged ahead and screamed on top of his lungs, "SMITE" as he cut down the dead. The light was blinding, and the sound the sword made when it came in contact with the skeletons, deafening.

Q49. A femur needs around 4000N to break. How fast must I hit the bone with my 8 kilogram mace in order to break it? $\Sigma F = m \cdot a$



Chapter 12

The Final Battle



They slowly entered the portal. Instead of another tunnel, there was a waterfall, a shallow lake and the moon. At first glance it was just a really nice change of surroundings. Despite the view, our heroes are still underground in a dome like cave. Near the end of the waterfall Laveau spots a few goblins fighting over an hourglass, biting, pushing, shouting, it was sure that at some point the hourglass would slip and break. Lavaeu and the Jew stealthily approached the goblins trying to grab the artefact, one goblin bitchslapped the other goblin with the artefact breaking it. Everyone is now freaking out, the hourglass is emitting a red light from the cracks and vibrating. Lavaeu is hugging a goblin and the other goblin grabbed the Jew by the head. The hourglass exploded and the shock wave sent everyone flying. The goblins fled without much hesitation. As the group got up, they saw ravenous flames swirling near the waterfall. From those flames, bones started to materialise **fwoowsh *splaaaasshhh *hiiisssshh*. A giant

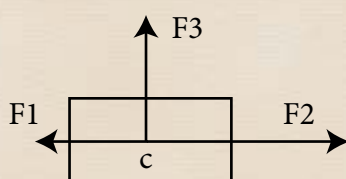
Q50. Calculate the angle in which the box is moving.

C= centre of mass

$$F_1 = 5\text{N}$$

$$F_2 = 25\text{N}$$

$$F_3 = 10\text{N}$$



skeleton leg hit the lake boiling the water in an instant. And then the second leg, the steam was rising fast. From that point the flames and the steam made it look like the moon was red, at least that's what our heroes thought. *Gggnnaaaarrrrrrlllll, a booming roar cleared the area, revealing a towering skeleton warrior. The moon they saw was the giant red crystal on his forehead. Its eyes lit with blue flames and his head turned towards the gang. Suddenly flames burst from his back, manifesting a third arm. The crystal was brightening up. The skeleton was almost as big as the dome.

Laveau grabbed the Jew and started to run towards the portal that got them there. It was futile as they were tiny compared to him. It could reach them with ease, yet it was just standing there motionless. Its fists were clenched, its blue eyes had died down. Only the crystal was still illuminated. They reached the portal arch, but something was odd, the runes weren't glowing, energy wasn't surging through... This was it...

Q51. I express emotion without features, I communicate without a voice, I bridge languages
What am I?



Freedom could only be achieved by a staircase near the waterfall. The only problem was the giant skeleton.

A sudden flash of blue light devoured all the shadows... The skeleton was now able to move. As it was opening its palms, a huge scimitars manifested. With a single move the skeleton stabbed the rocky terrain beneath the portal with its two main arms. The ground fell apart, the Jew quickly pushed Lavaeu out of harm's way and into the bushes near the lake. Lavaeu fell with such tremendous speed, she was pierced by branches. Shocked from the pain she screamed, but no sound came out. She noticed that Jorahel was on her lap. *"HURRY UP WE HAVE TO GET OUT OF HERE, WHAT ARE YOU DOING, GET UP"*. Tears were streaming down her eyes, Jorahel didn't push her to protect her from rubble or debris but from its third arm. He was laying there with a smile, torn in half and with severe burn marks. Laveau broke free from the branches and rushed as fast as she could towards the moonlight.

- Q52. If the skeleton can swing his 15 kilograms sword at 50 feet per 6 seconds and you can run 30 feet per 6 seconds, can you outrun the sword if your original distance is 10 feet ?
 If not, what will the relative speed of the impact be?
 How many seconds will it take for the sword to hit you?
 What is the sword's acceleration?

Chapter 13

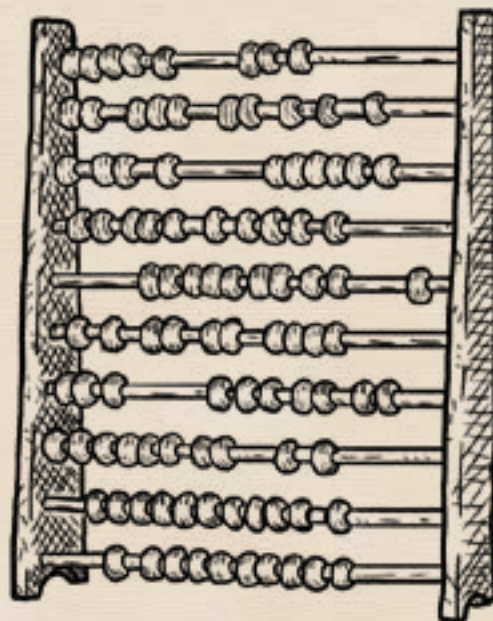
New Beginning



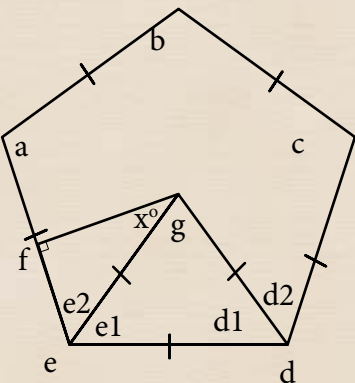
There, in the deepest of seas, in the darkest hours, as the demons take hold, Laveau found the courage to end it all. She took her sickle and a mere second before taking her life, the Monarch wyvern bolted near her, retrieving her from harm's way.

Up in the clear dark blue sky Laveau stares down on the mansion where she left her friends alone. *"What a terrible night to rain"*, she said, as her tears dripped down the sky. *"I am Delphine Laveau, the Death Priestess of Baron Samedi, and that is the beginning of my story"*.

Q53. How much money would Ronan have to pay in order to keep up his deal for the Orc ears?
(This can only be answered if you paid attention to the story)

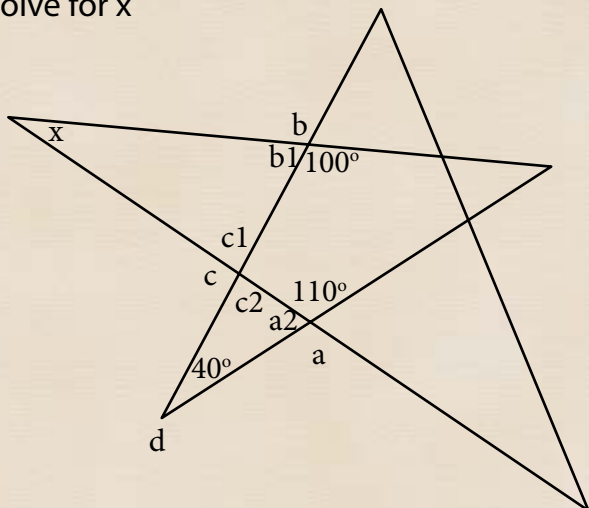


<p>Question 1 (p.9) If the army marches 32 km in 8 hours what distance would they cover in a day if they slept only 4 hours?</p>	<p>$32/8=4$ kmh A day has 24 hours but they will sleep for 4 $24-4=20$ $20*4=80$ km if they sleep 4 hours</p>
<p>Question 2 (p.10) If the inn has 8 tables with 6 chairs each, what is its maximum capacity?</p>	<p>$8*6=48$ The inn can house up to 48 guests</p>
<p>Question 3 (p.11) If the cheapest item on the menu costs 10 silver and the priciest items costs 1 gold, how much could the bill be at a full table.</p>	<p>$6*10=60$ silver $6*1=6$ gold 60 silver \leq bill \leq 6 gold</p>
<p>Question 4 (p.12) If a 5kg sword falls from a ledge that is 2 metres in height, what is the speed it will hit the ground after 2 seconds?</p>	<p>$U=g*t=10*2=20$m/s</p>
<p>Question 5 (p.12) Calculate the force the pouch hit the table if you consider a gold coin to weigh 8 grams.</p>	<p>$\Sigma F=m*a=(8*30)*10=240*10=2400$N</p>
<p>Question 6 (p.13) I only point in one direction, but I guide people around the world. What am I?</p>	<p>A compass</p>
<p>Question 7 (p.13) Some are cherished, some are hated, and even if lost they remain with you. What are we?</p>	<p>Memories</p>

<p>Question 8 (p.14)</p> <p>What goes up and down but doesn't move?</p>	<p>A staircase</p>
<p>Question 9 (p.14)</p> <p>What is cut on a table, but is never eaten?</p>	<p>A deck of cards</p>
<p>Question 10 (p.16)</p> <p>Solve for x and y</p> $2^{(x-y)}=4$ $2^{(x+y)}=8$	$2^{(x-y)}=2^2 \quad 2^{(x+y)}=2^3$ $x-y=2 \quad x+y=3$ $x=2+y \quad (2+y)+y=3$ $2+2y=3$ $2y=1$ $y=1/2$ $x=2+1/2=2,5$
<p>Question 11 (p.16)</p> <p>What goes on four feet in the morning, two feet in midday, and three feet in the evening</p>	<p>A Human</p>
<p>Question 12 (p.18)</p> <p>Solve for x°</p> 	<p>Equilateral triangle</p> $180^\circ/3=60^\circ$ <p>so $e1=d1=g=60^\circ$</p> <p>Regular polygon</p> $((n-2)180^\circ)/5=((5-2)180^\circ)/5=108^\circ$ <p>so $a=b=c=d=e=108^\circ$</p> $d1+d2=d$ $60^\circ+d2=108^\circ$ $d2=48^\circ$ $e1+e2=e$ $60^\circ+e2=108^\circ$ $e2=48^\circ$ $f=90^\circ$ $f+e2+x=180^\circ$ $90^\circ+48^\circ+x=180^\circ$ $x=42^\circ$

Question 13 (p.18)

Solve for x



$$a1=110^\circ$$

$$a1+a2=180$$

$$110+a2=180$$

$$a2=70^\circ$$

$$a2+c2+d=180^\circ$$

$$40+c2+70=180$$

$$c2=70^\circ$$

$$c1=c2=70^\circ$$

$$b2=100$$

$$b1+b2=180$$

$$b1+100=180$$

$$b1=80$$

$$x+c1+b1=180$$

$$x+70+80=180$$

$$x=30^\circ$$

Question 14 (p.19)

What kind of storm is always in a rush?

A Hurricane

Question 15 (p.19)

Birds soar freedom with it and people write with it. What is it?

A feather

Question 16 (p.20)

You have two hourglasses. One empties in 7 minutes. The other empties in 4 minutes. How can you use these two hourglasses to measure exactly 9 minutes?

Flip both timers over. When the 4-min timer is empty, flip it over (the 7-min timer has 3 minutes left in the top). When the 7-min timer is empty, flip it over (there is now 1 minute left in the top of the 4-min timer). When the 4-min timer is empty for the second time, the 7-min timer has 1 minute worth of sand in the bottom half. Flip it over so there is now 1 minute on the top. When the 7-min timer empties, 9 minutes have elapsed.

Question 17 (p.22)

What are the values of A and B?

$$A+B=A*B=A/B$$

B can't be 0 because you can't divide with 0

If $A=0$

$$0+B=0*B=0/B=0$$

so $B=0$

A can't be 0

$$A*B=A/B$$

$$B*A*B=(A/B)*B$$

$$A*B^2=A$$

$$B^2=1$$

$$B=1 \quad B=-1$$

If $B=1$

$$A+1=A*1$$

$$A+1=A$$

$$1=0$$

If $B=-1$

$$A+(-1)=A*(-1)$$

$$A-1=-A$$

$$2A=1$$

$$A=1/2$$

Question 18 (p.22)

Solve for x and y

$$x^2+y^2=25$$

$$2x+y=10$$

$$x+y=?$$

$$2x+y=10$$

$$y=10-2x$$

$$x^2+y^2=25$$

$$x^2+(10-2x)^2=25$$

$$x^2+10^2+2*10*(-2x)+(2x)^2=25$$

$$x^2+100-40x+4x^2=25$$

$$5x^2-40x=-75$$

$$x^2-8x=-15$$

$$x^2-8x+15=0$$

$$(x-3)*(x-5)=0$$

$$x-3=0 \quad x-5=0$$

$$x=3 \quad x=5$$

If $x=3$

$$y=10-2*3=10-6=4$$

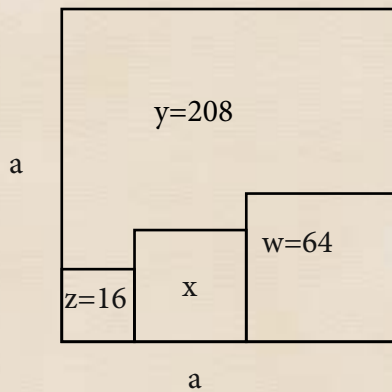
If $x=5$

$$y=10-2*5=10-10=0$$

<p>Question 19 (p.25)</p> <p>If 4 potions cost 30 gold and the ingredients to craft a single potion cost a total of 6 gold, which option is more beneficial to the party?</p>	<p>$4*6=24$ $24<30$ It is more cost effective to buy the ingredients and craft the potions</p>
<p>Question 20 (p.26)</p> <p>The potion of healing heals 2d6. The scroll greater restoration heals 3d4. Which one should i choose and why.</p>	<p>The d6 can roll numbers from 1 up to 6 So the minimum amount the potion heals is $2*1=2$ The maximum amount the potions heals is $2*6=12$</p> <p>The d4 can roll numbers from 1 up to 4 So the minimum amount the scroll heals is $3*1=3$ The maximum amount the scroll heals is $3*4=12$</p> <p>If we compare the amounts, both heal a maximum of 12, but have different minimum values $2<3$ I can heal more if i use the scroll.</p>
<p>Question 21 (p.27)</p> <p>I have to work every day, every second, every hour, every minute, day in day out. What am I?</p>	<p>A clock</p>
<p>Question 22 (p.27)</p> <p>It belongs to you, but other people use it more than you do. What is it?</p>	<p>Your Name</p>
<p>Question 23 (p.29)</p> <p>Where can I store more gunpowder, in a 1,6x1,6 crate or in a 1,6x2 barrel ?</p>	<p>$1,6*1,6=2,56$ m² of storage space in the crate $1,6*\pi*r*r=1,6*3,14*1*1=5,024$ m² of storage in the crate</p> <p>$2,56<5,024$ so I have more storage area if i use the barrel</p>

Question 24 (p.30)

Calculate the area of x



All shapes are squares so the formula for the area is $x \cdot x$.

I will name the big sides a.

$$z^2=16$$

$$z=4$$

$$w^2=64$$

$$w=8$$

$$a=z+x+w=4+x+8=12+x$$

$$a^2=208+16+x^2+64$$

$$(12+x)^2=288+x^2$$

$$144+24x+x^2=288+x^2$$

$$24x=144$$

$$x=6$$

$$x^2=6 \cdot 6=36$$

Question 25 (p.32)

Artúr's basket has 10 large mushrooms 6 potatoes and 2 carrots. A single serving of soup requires 3 mushroom half a carrot and 2 potatoes. How many servings can he cook? Will the servings be enough for everyone ?

The party has 4 people so to make soup for everyone we need

$$4 \cdot 3=12 \text{ mushrooms}$$

$$4 \cdot (1/2)=2 \text{ carrots}$$

$$4 \cdot 2=8 \text{ potatoes}$$

No, the serving will not be enough for everyone. 1 party member will not eat soup.

Question 26 (p.35)

A mother has six children and five potatoes. How can she feed each an equal amount of potatoes? Do not use fractions.

By making mashed potatoes

Question 27 (p.36)

I have a tail but I'm not a mouse, I have scales but I'm not a fish, I have wings but I'm not an aeroplane. What am I?

A Dragon

Question 28 (p.39)

The day before two days after the day before tomorrow is Saturday. What day is it today?

Friday. The "day before tomorrow" is today; "the day before two days after" is really one day after. So if "one day after today is Saturday," then it must be Friday.

Question 29 (p.39)

There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there?

Three. Two ducks are in front of the last duck; the first duck has two ducks behind; one duck is between the other two.

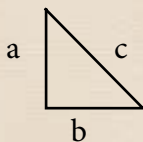
Question 30 (p.40)

One roll of silk is 1m in height and contains 91,4m of silk. How much money would they make if the party sold the six rolls of silk, if the price of silk is 26 gold per square metre?

$$h * l = 1 * 91,4 = 91,4 \text{ m}^2$$
$$6 * 91,4 = 548,4 \text{ m}^2$$
$$548,4 * 26 = 14.258,4 \text{ gold}$$

Question 31 (p.44)

if an enemy is 35 feet in the air and you are 40 feet away from him on the ground, can a spell with range 30 feet reach him? if no how many feet should you move in order to reach him?



$$a^2 + b^2 = c^2$$
$$a = 35$$
$$b = 40$$

In order to hit $c \leq 30$

$$35^2 + 40^2 = c^2$$
$$1225 + 1600 = c^2$$
$$c = 2825^{(1/2)}$$
$$c = 53,1$$

$53 > 30$ so i cannot hit him.

I can't hit the enemy nomatter how much I move because he is 35 feet up and my spell has a range of 30 feet $30 < 35$.

<p>Question 32 (p.45) If Chiron, the 950 kilos centaur, is running at a speed of 12 metres per second, collides with an 113 kilos stationary Orc, calculate the V' of Orc, if Chiron's V'=7ms/s after the impact.</p>	$m_1 \cdot v_1 + m_2 \cdot v_2 = m_1 \cdot v_1' + m_2 \cdot v_2'$ $950 \cdot 12 + 113 \cdot 0 = 950 \cdot 7 + 113 \cdot v_2'$ $950 \cdot 12 = 950 \cdot 7 + 113 \cdot v_2'$ $v_2' = 950 \cdot (12 - 7) / 113 = (950 \cdot 5) / 113 = 42 \text{ m/s}$
<p>Question 33 (p.47) I am easy to lift, but hard to throw. What am I?</p>	<p>A Feather</p>
<p>Question 34 (p.47) What gets broken without being held?</p>	<p>A Promise</p>
<p>Question 35 (p.48) How many foes you must obliterate in order to craft a 5 kilogram sword if you consider they have 4 grams of iron in them.?</p>	$5000 / 4 = 2500 / 2 = 1250 \text{ foes to make a sword}$
<p>Question 36 (p.49) I have mountains, but I am not tall, I have water but I am not wet, I have cities but not people, what am i?</p>	<p>A Map</p>
<p>Question 37 (p.50) An object moves along a straight line with an acceleration of 2 m/s². If its initial speed is 10 m/s, what will be its speed 2 s later? $v = u + at$</p>	<p>Here $u = 10 \text{ m/s}$, $a = 2 \text{ m/s}^2$, $t = 2 \text{ sec}$ $v = u + at$ $v = 10 + 2 \times 2 = 10 + 4 = 14 \text{ m/s}$</p>

Question 38 (p.51)

A ball is thrown upwards and it goes to the height of 100 m and comes down

- a) What is the net displacement?
- b) What is the net distance?

a) 0 m because it comes back to the starting point

b) 100m (going up) + 100m (going down) = 200 m

Question 39 (p.53)

What is so fragile that saying its name breaks it?

Silence

Question 40 (p.54)

What can run but never walks, has a mouth but never talks, has a head but never weeps, has a bed but never sleeps?

A River

Question 41 (p.56)

A train 120 m long is moving with a velocity of 72 km/hr. Find the time it will take to cross a bridge that is 3 km long.

The total distance the train has to do is equal to the length of the bridge plus the length of the train itself.

$$3\text{Km}=3000\text{m}$$

$$72\text{Km/h}=20\text{m/s}$$

$$U=\Delta x/\Delta t$$

$$\Delta t=\Delta x/U=(3000+120)/20=3120/20=156\text{s}$$

Question 42 (p.57)

Calculate the total force on the object.

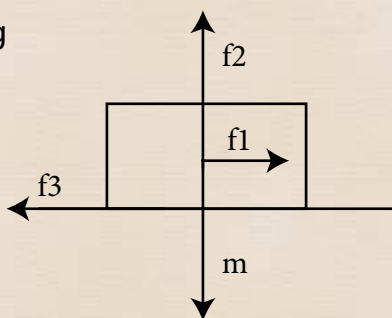
$$g=10\text{m/s}^2$$

$$f_1=45\text{N}$$

$$m=12\text{Kg}$$

$$f_3=20\text{N}$$

$$f_2=?$$



$$f_2=m*g=12*10=120\text{N}$$

$$\Sigma F=f_1+f_2+f_3+m$$

$$\Sigma F=45+(-120)+(-20)+120$$

$$\Sigma F=45-20=25\text{N}$$

<p>Question 43 (p.59) I turn once, what is out will not get in. I turn again, what is in will not get out. What am I?</p>	<p>A Key</p>
<p>Question 44 (p.61) What building has the most stories?</p>	<p>A Library</p>
<p>Question 45 (p.61) What five-letter word becomes shorter when you add two letters to it?</p>	<p>Short</p>
<p>Question 46 (p.62) There are two sisters; one gives birth to the other, who in turn gives birth to the first. Who are they?"</p>	<p>Day and Night</p>
<p>Question 47 (p.65) Calculate the distance from the library to the catacombs, if our heroes travelled at a speed of 2m/s for 30 minutes.</p>	<p> $U = \Delta x / \Delta t$ $U * \Delta t = \Delta x$ $U = 2\text{m/s}$ $\Delta t = 30 \text{ minutes} = 30 * 60 = 1800 \text{ seconds}$ $2 * 1800 = \Delta x$ $\Delta x = 3600\text{m} = 3.6\text{Km}$ </p>

Question 48 (p.66)

Calculate this

$$6 + \frac{42}{9 - \frac{351}{18 + \frac{7}{1 - \frac{428}{603}}}}$$

We have to start from the bottom to get to the top.

$$1 - \frac{428}{603} = \frac{603}{603} - \frac{428}{603} = \frac{603 - 428}{603} = \frac{175}{603}$$

$$\frac{7}{\left(\frac{175}{603}\right)} = \frac{(603 \cdot 7)}{175} = \frac{(603 \cdot 7)}{(25 \cdot 7)} = \frac{603}{25}$$

$$18 + \frac{603}{25} = \frac{(18 \cdot 25)}{25} + \frac{603}{25} = \frac{(450 + 603)}{25} = \frac{1053}{25}$$

$$\frac{351}{\left(\frac{1053}{25}\right)} = \frac{(351 \cdot 25)}{1053} = \frac{(351 \cdot 25)}{(3 \cdot 351)} = \frac{25}{3}$$

$$9 - \frac{25}{3} = \frac{27}{3} - \frac{25}{3} = \frac{(27 - 25)}{3} = \frac{2}{3}$$

$$\frac{42}{\left(\frac{2}{3}\right)} = \frac{(42 \cdot 3)}{2} = \frac{(21 \cdot 2 \cdot 3)}{2} = 21 \cdot 3 = 63$$

$$6 + 63 = 69$$

Question 49 (p.67)

A femur needs around 4000N to break. how fast must I hit the bone with my 8kilogram mace in order to break it?

$$\begin{aligned} \Sigma F &= m \cdot a \\ 4000 &= (8 \cdot 10) \cdot a \\ a &= 4000 / 80 = 400 / 8 = 20 / 4 = 10 / 2 = 5 \text{ m/s}^2 \end{aligned}$$

Question 50 (p.69)

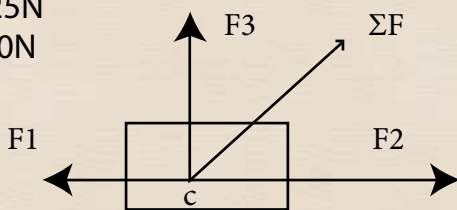
Calculate the angle in which the box is moving.

C = centre of mass

F1 = 5N

F2 = 25N

F3 = 10N



Fx = F1 + F2 = -5 + 25 = 20N

Fy = F3 = 10N

To calculate the ΣF we need to create a triangle with sides Fx and Fy. Now using the pythagorean theorem we can calculate ΣF

ΣF² = Fy² + Fx²

ΣF² = 10² + 20²

ΣF² = 100 + 400

ΣF² = 500

ΣF = 500^{1/2}

ΣF = 22N approximately

Question 51 (p.70)

I express emotion without features, I communicate without a voice, I bridge languages

A Gesture

Question 52 (p.71)

If the skeleton can swing his 15 kilograms sword at 50 feet per 6 seconds and you can run 30 feet per 6 seconds can you outrun the sword if your original distance is 10 feet ?
If no what will the relative speed of the impact be?
How many seconds will it take for the sword to hit you?
What is the sword's acceleration?

Your starting point is at 10 feet and the sword starts at 0 feet.
 $50/6=30/30=10$ feet per second. The sword moves 10 feet per second
 $30/6=10/2=5$ feet per second. You move 5 feet per second
 $10-5=5$ f/s
The sword's relative speed is 5f/s
 $10/5=2$
it takes 2 seconds for the sword to reach you

Question 53 (p.73)

How much money would Ronan have to pay in order to keep up his deal for the Orc ears?

10 gold per pair. The party killed 6 Orcs
 $10*6 = 60$ gold

Chapter 15

Bookmarks

The images on the next page are a small gift to you dear reader.

These will help keep track of your progress during study sessions.

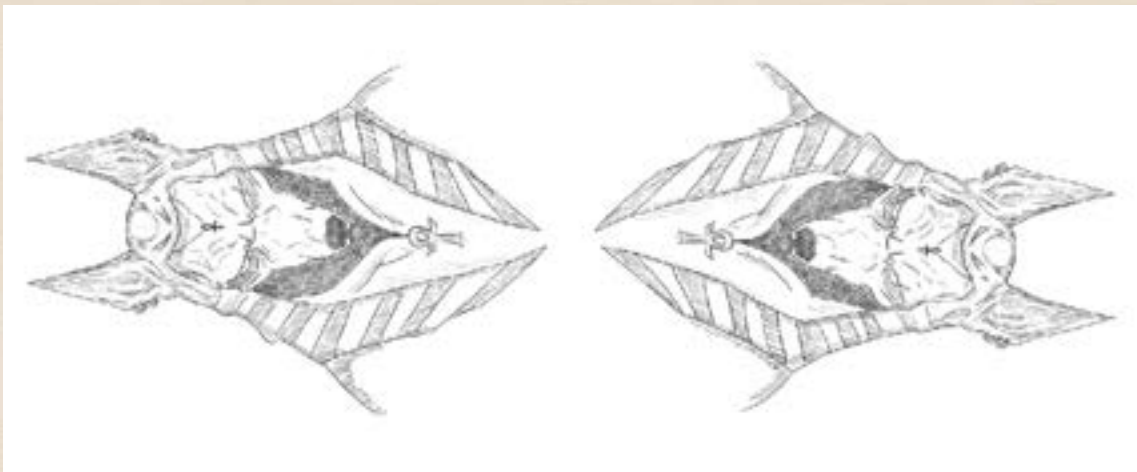
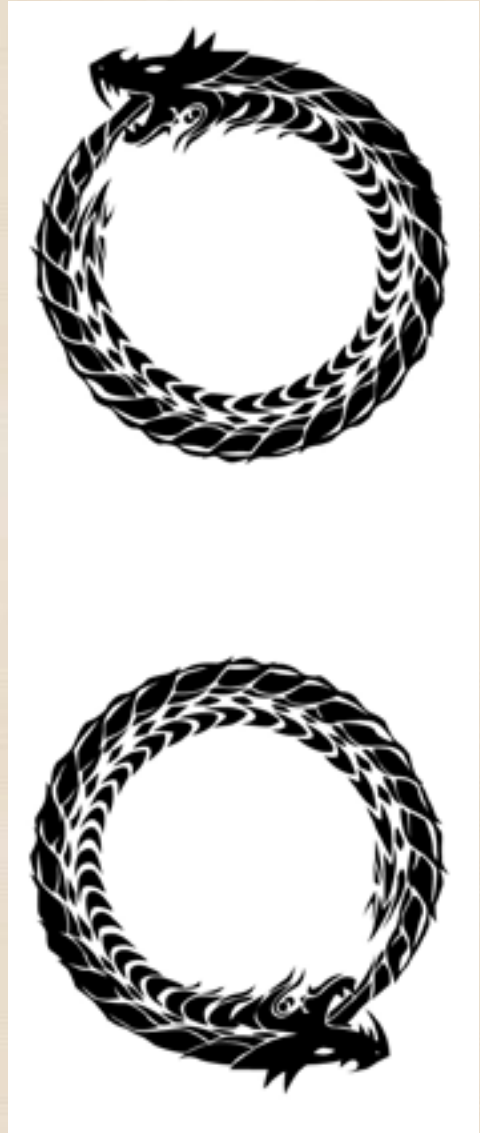
Cut the red outline with a pair of scissors or a box cutter.

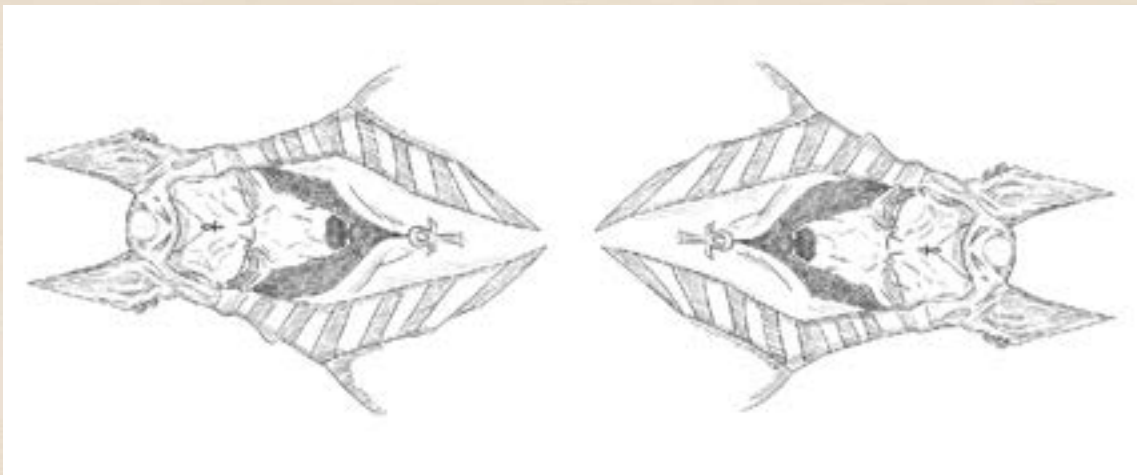
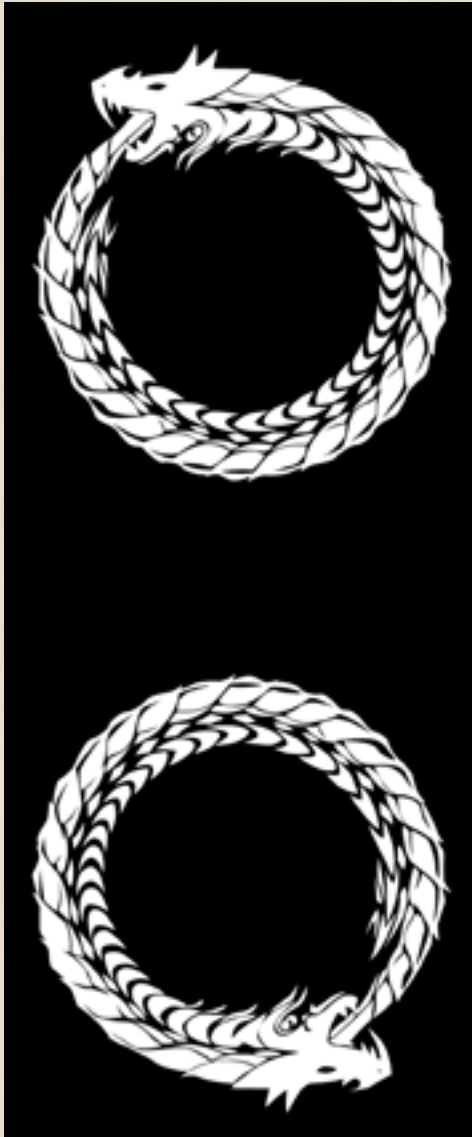
If you use a box cutter, be careful not to damage your fingers or the back of the book.

Of course, you could simply cut the whole page and then separate the bookmarks.

Lastly, you could just let them be, it's up to you.

Thank you for purchasing this book.





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Συγγραφή & Εικονογράφηση Βιβλίου

Mathemagic – Mystiphysics

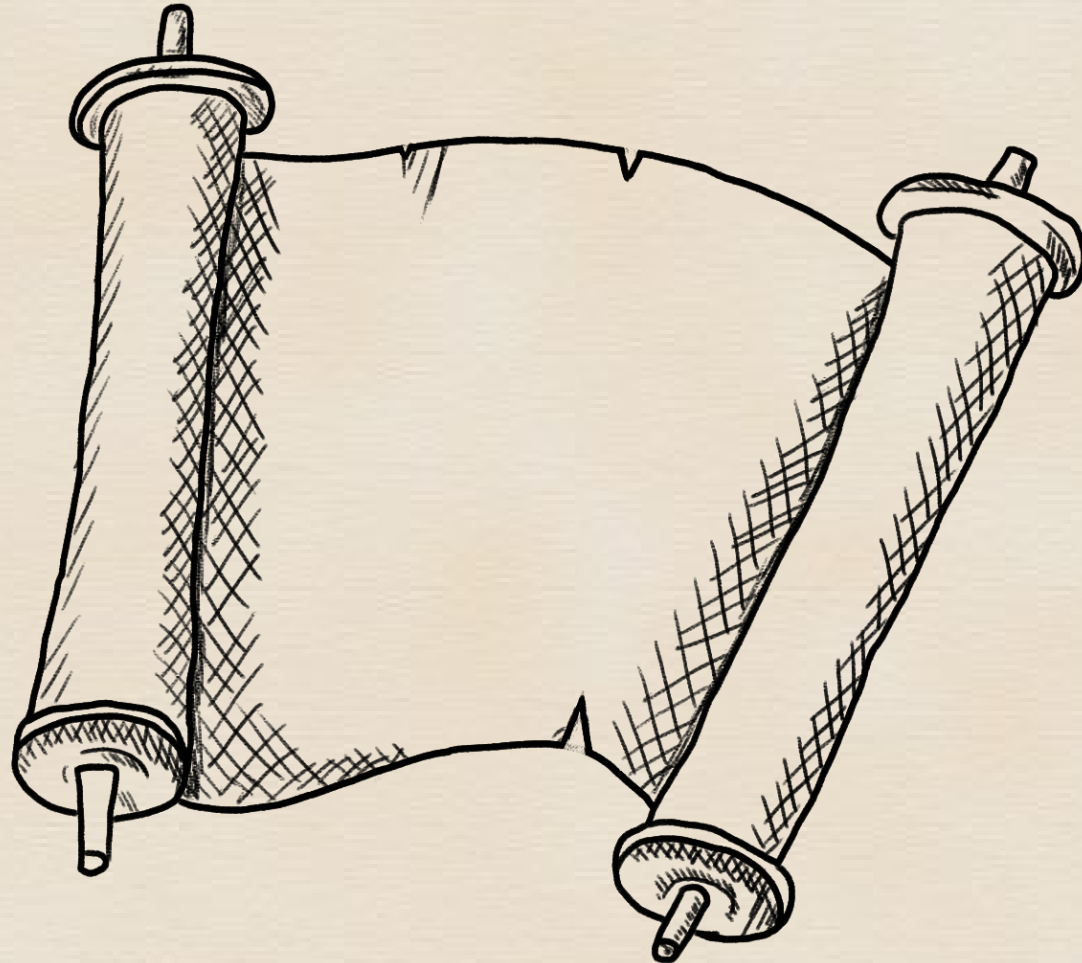
Πτυχιακή Εργασία

Μιχαήλ Βουτσίνου

17014

Περιεχόμενα

- Ιδέα
- Στόχος
- Επιρροή
- Προσέγγιση
- Χρωματική Παλέτα
- Στήσιμο
- Σαλόνια
- Γραμματοσειρές
- Εικονογράφηση
- Λογότυπο
- Προώθηση





IDEA

Η ιδέα για την πτυχιακή μου βασίζεται στην δημιουργία ενός βιβλίου εκπαιδευτικών δραστηριοτήτων για εφήβους, το οποίο θα χρησιμοποιηθεί ως συμπληρωματικό εκπαιδευτικό υλικό, προσφέροντας εμπέδωση, είτε κατά τη διάρκεια της σχολικής χρονιάς, είτε κατά την περίοδο των διακοπών.





ΣΤΟΧΟΣ

Απώτερος στόχος μου είναι :

- η ενίσχυση της κριτικής σκέψης και φαντασίας
- η ωρίμανση του ατόμου από νεαρή ηλικία
- η συνειδητοποίηση πως όλα τα προβλήματα έχουν την λύση τους, με βάση την λογική, την υπομονή και την σωστή στρατηγική προσέγγιση



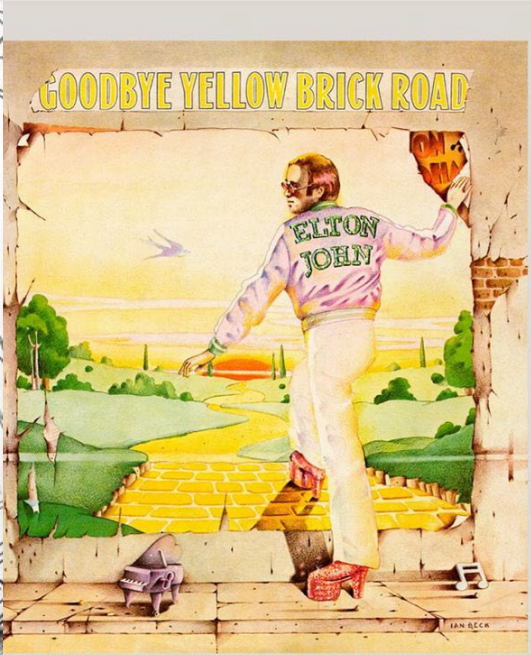


ΕΠΙΡΡΟΗ

Βασικές πηγές επιρροής αποτέλεσαν:

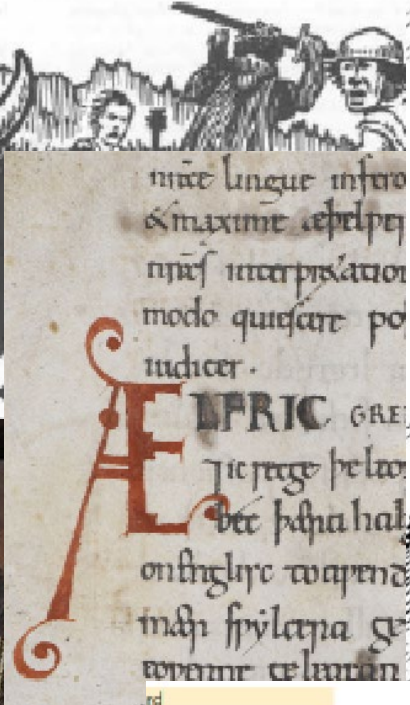
- κόμικς
- βιβλία και εγχειρίδια επιτραπέζιων παιχνιδιών φαντασίας
- βιβλία αλχημείας
- συγγράμματα του Μεσαίωνα
- παλιά υλικά όπως ο πάπυρος
- τα παραμύθια



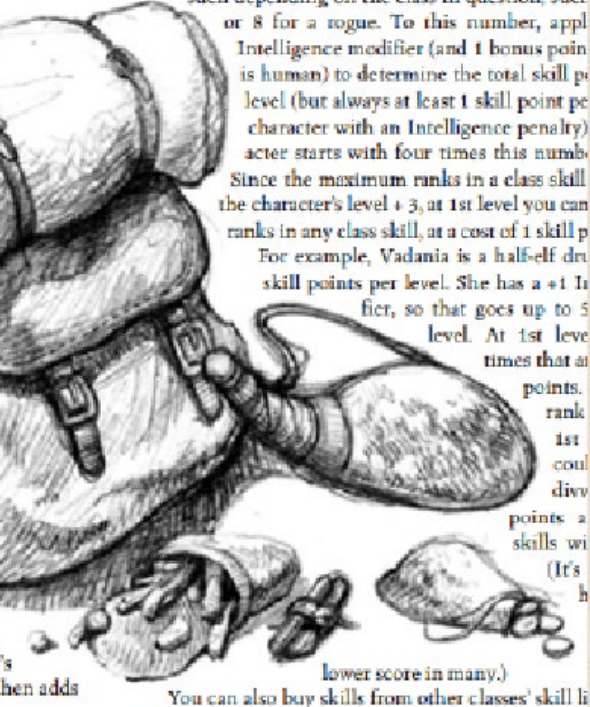


BYE YELLOW BRICK ROAD
By Elton John • 1973

OR A FRIEND/LOVE LIES BLEEDING / CANDLE IN THE WIND / BENNIE
TS / GOODBYE YELLOW BRICK ROAD / THIS SONG HAS NO TITLE /
/ JAMAICA JERK-OFF / I'VE SEEN THAT MOVIE TOO / SWEET
PAINTED LADY / THE BALLAD OF DANNY BAILEY (1909-1934) / DIRTY LITTLE
GIRL / ALL THE GIRLS LOVE ALICE / YOUR SISTER CAN'T TWIST (BUT SHE CAN
ROCK 'N' ROLL) / SATURDAY NIGHT'S ALRIGHT FOR FIGHTING / ROY ROGERS /
SOCIAL DISEASE / HARMONY



monk, ranger
Die
a
ny
the
is or
is, a
ber
or
-l
n
g
rill
s a ds
L At 1st
stead
as a
she
er hit points to 9. When she
ry level thereafter), Vadiana's
ner Constitution bonus), and then adds
ts.



The sun did not shine.
It was too wet to play.
So we sat in the house
such depending on the class in question, such
or 8 for a rogue. To this number, appl
Intelligence modifier (and 1 bonus poin
is human) to determine the total skill p
level (but always at least 1 skill point pe
character with an Intelligence penalty)
acter starts with four times this numb
Since the maximum ranks in a class skill
the character's level + 3, at 1st level you can
ranks in any class skill, at a cost of 1 skill p
For example, Vadiana is a half-elf dru
skill points per level. She has a +1 In
ficar, so that goes up to 5
level. At 1st leve
times that at
points.
rank
1st
cou
div
points: a
skills wi
(It's h
lower score in many.)
You can also buy skills from other classes' skill li
point only buys 1/2 rank in these cross-class skills



ΠΡΟΣΕΓΓΙΣΗ

Προκειμένου να πετύχω τον στόχο μου και να υλοποιήσω την ιδέα μου ακολούθησα τα εξής:

- Δημιούργησα ένα ευχάριστο, πρωτότυπο και επιθυμητό βιβλίο
- Συνδύασα εκπαιδευτικές δραστηριότητες με περιπετειώδες μυθιστόρημα, αινίγματα και έντονη εικονογράφηση
- Έγραψα μια ιστορία με θέμα οικείο και αρεστό στους σύγχρονους εφήβους, που ξεφεύγει από τα κλασικά παραμύθια και κινείται σε φανταστικούς κόσμους
- Περίορισα τις εκπαιδευτικές δραστηριότητες σε προβλήματα μαθηματικών και φυσικής, γιατί απαιτούν λογική σκέψη από τη φύση τους
- Προσπάθησα να κρατήσω το ενδιαφέρον του αναγνώστη, να του εξάψω την φαντασία, να τον μεταφέρω σε άλλους κόσμους





ΧΡΩΜΑΤΙΚΗ ΠΑΛΕΤΑ

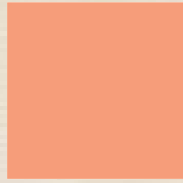


#000000

C=0
M=0
Y=0
K=100

R=0
G=0
B=0

H=36
S=0
B=0



#fb8a5f

C=0
M=46
Y=51
K=0

R=251
G=138
B=95

H=15
S=61
B=98

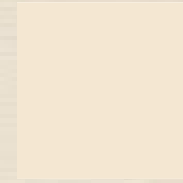


#d1b68b

C=15
M=22
Y=36
K=3

R=208
G=182
B=139

H=36
S=32
B=81



#f4e7ca

C=4
M=8
Y=17
K=3

R=244
G=231
B=202

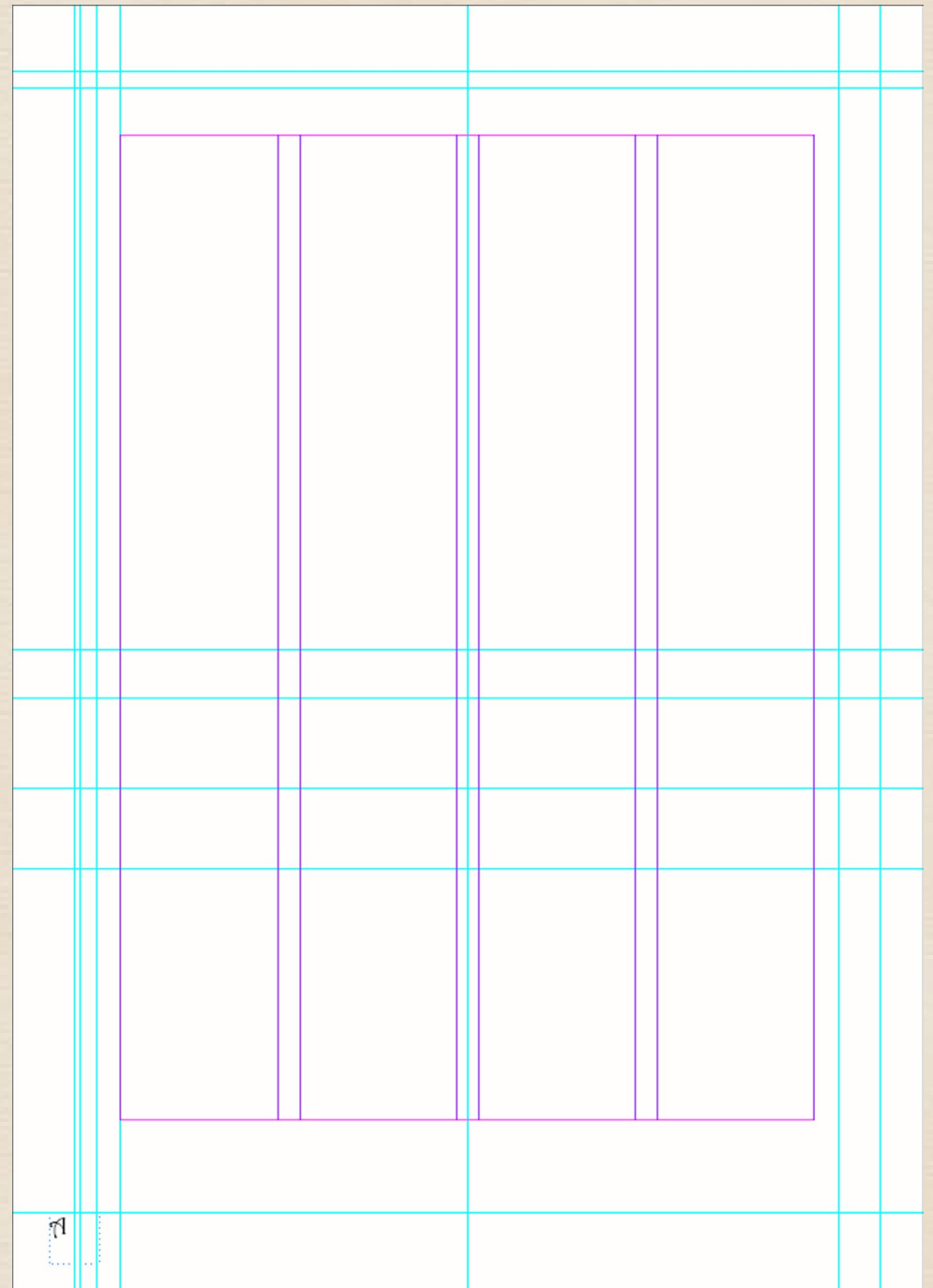
H=40
S=16
B=95



ΣΤΗΣΙΜΟ

Η σελίδα είναι χωρισμένη σε τρία μέρη.

- Το πάνω μισό που περιέχει το βασικό κείμενο.
- Το κάτω δεξιά είναι η θέση της εικόνας.
- Το κάτω αριστερά είναι η θέση της ερώτησης.





ΣΑΛΟΝΙΑ

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MATHEMAGIC - MYSTIPHYSICS

Mike Voutsinos

Author - Artist



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This amalgamation of a book combines both fairytales and education. Keeping the best of both worlds to produce a peculiar outcome.

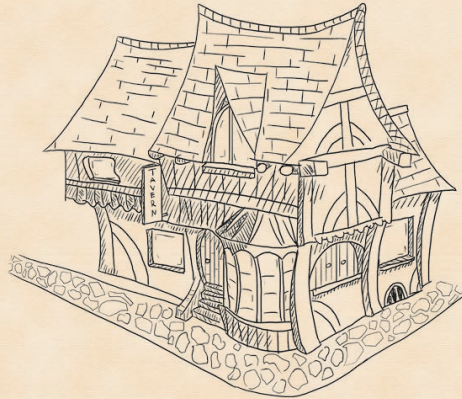
This book offers a dissimilar fairy-tale from the classics, math problems and riddles to hone a teenager's thinking ability. This book makes learning more fun than the traditional plain books, because it has more pictures and an elaborate story to keep someone intrigued for a longer period of time.

Moreover all the problems require logic, so with the given formulas all minds should be able to solve them. Being able to sometimes solve complex problems or break them down to more digestible bites is beneficial for the child, because it will learn that all hard problems can be solved with reason and strategic approach.

Small steps at a time will help children understand better the concept of math and physics unlike the traditional methods of dumping information on them and hope they understand. Also coming in contact with more complex subjects at a young age such as the aforementioned will help mature the kid faster and even maybe kindle a spark for an interest down the path of life.

On the other hand, if a child is a daydreamer and its mind is always running to otherworldly adventures this book provides an interesting story to keep it entertained for hours.

Chapter 1 The Tavern



5

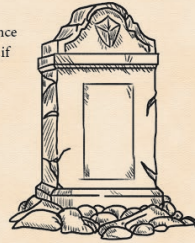
The Tavern

In the dead of night an army marches through the forest. *thud splash
Their arms... Heavy.
Their knees... Weak.
Their palms... Sweaty.
Their breath... Short.

Their path stained with blood and death. The troops are broken in many ways. Sadness... Anger... Regret... Relief... That is all they can express. Sadness as they lost their brothers in arms. Anger because they lost and got butchered mercilessly. Regret since there was no other way, sacrifices had to be made. Relief, the thought of having survived.

The unit walks in a straight line, despite their condition they are disciplined. A few feet ahead, someone is slashing the path clear. Ronan, the commander. From the deep darkness, a small ray of light

Q1. If the army marches 32 km in 8 hours, what distance would they cover in a day if they slept only 4 hours?



9

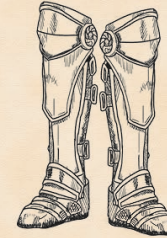
Chapter 1

shines upon Ronan's dented chest plate. It's been 7 long hours of hiking. Finally, the troops are minutes away from a warm plate of food and a cozy blanket. There in the middle of the woods lies Greenleaf, a beacon of hope and civilization.

The sound of silence is distributed by gallops and moans *thud *thud *tuk *panting *neighs*. The legion entered the small town and caused some ruckus to the villagers. Almost all bolted to barricade themselves inside.

Some drunkards and foolishly brave were standing on the road staring at the bloody army. With a swift movement, Ronan dismounts his stallion *thud and walks up to an old guy. His boots made a mess from the wet soil. His towering physique compared to the elder's fragile and rigid body was a scary sight. Ronan had no ill motives, he chatted with the mayor for a brief moment. The mayor pointed out with a shaking

Q2. If the inn has 8 tables with 6 chairs each, what is its maximum capacity?



10

The Tavern

hand the "Blue Unicorn" Inn and Ronan made his way to that direction. Ronan and 2 guards entered the Inn. The guards stayed by the door as Ronan approached the tavern owner, an old former adventurer, Jak. Their conversation was short and ended with a hesitant nod from Jak. Ronan jumped on a table *thud *THUD and with his deep voice silenced everyone. Every customer was staring at him. Stares of annoyance, hatred and amazement.

"HEED my words and you might earn some coin. I am Ronan, commander of the 13th legion. My men and I were to accompany a royal, Iris Ahgni of Agrabah, from the port of Heidrion to her mansion in the woods outside Greenleaf.

We were ambushed by bloodthirsty Orcs near the mansion. The casualties were severe. That was no battle, that was a massacre. Princess Iris is

Q3. If the cheapest item on the menu costs 10 silver and the priciest items costs 1 gold, how much could the bill be at a full table.

11

Chapter 1

protected by a powerful spell in her chambers, but alas, it won't last long. My strongest guess is during tomorrow's midday, when the sun is at its highest. I failed our mission and endangered the princess' life. Her death will start a war, the king of Agrabah is not known to be a merciful man... I'm afraid Albion won't survive a full scale assault. Thus I beg you to aid me and my men in this difficult situation, rescue the princess, rescue Albion. To those brave enough to join us there will be a handsome reward. 200 gold coins each and 10 more for every pair of Orc ears you gather. Our savings are low but we offer 30 gold coins in advance as a bonus as a precaution for armour weapon repairs and medical kits."

Ronan tosses the pouch on the table *clang. The villagers stare and laugh their hearts out. They swear, spit and throw stuff at him. Voices from the back can be heard.

Q4. If a 5kg sword falls from a ledge that is 2 metres in height, what is the speed it will hit the ground after 2 seconds?



Q5. Calculate the force the pouch hit the table if you consider a gold coin to weigh 8 grams.

12

The Tavern

"Go away lad, we ain't having time for your shite"
"Bollocks, the King won't pay a nickel"
"Twas time you leave"

The shouts go on... All but one table, a small odd party of 4 made no fuss about him. Ronan stands down from the table wiping his face and armour from the saliva and the lettuce leaves. As he was exiting he overhears their discussions about the matter and stands by the door for a mere moment. The party stands up silencing everyone with their mighty action.

Q6. I only point in one direction, but I guide people around the world. What am I?

Q7. Some are cherished, some are hated, and even if lost they remain with you. What are we?

13

Chapter 1

Forward steps a lass, with a delicate physique, a beauty. Tall, slender with just the right curves. She is dressed in red, a classy red top hat with a big fluffy bright orange feather and small bones, a long leathery dark red trench coat, an elegant corset with a dim red hue and stockings with a tiny bit of red. On her right wrist there is a golden chain and on the left she holds a sceptre, wooden design ending in scythe. Her eyes are big, sparkling with the power of an inferno, complimenting her fiery lips. Her smooth tanned skin contrasts the chalky white skull she has painted on her face. Her dark long dreadlocks have rings and bracelets as accessories. She wears a tooth necklace and a choker around her neck.

Q8. What goes up and down but doesn't move?

Q9. What is cut on a table, but is never eaten?



14

The Tavern



15

The woman introduces herself and her fellow companions to Ronan. "I am Delphine Laveau, this is Emerald, Jorahel and Chiron. We got motivated by your speech and that big pile of gold you mentioned and decided to aid you. Feel free to let us in on all the juicy details." Emerald, the Minotaur, complains a little bit about the shiny hooman. Emerald is the typical brute someone would expect Minotaurs to be, well built body, pronounced muscles, big heavy horns, short temper and lots and lots of fur.

His fashion sense isn't as honed as his other senses... Since he is basically walking around in his birthday suit with just a piece of rag to cover his... Minotaurhood. Emerald expressed his denial in a not so friendly way, "I work for no man who can't prove his worth, fight me right here right now!"; Ronan tries to avoid the fight and ignores him. Emerald craves the fight, insulting and taunting Ronan. Ronan eventually gave in to

Q10. Solve for x and y
 $2^x(x-y)=4$
 $2^x(x+y)=8$

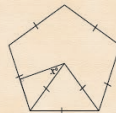
Q11. What goes on four feet in the morning, two feet in midday, and three feet in the evening



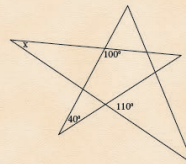
the temptation. With a hypersonic fling of his sword the Minotaur that was towering over his head is now laid flat on the ground. In a blink of an eye everything was over, not a single drop of blood on Ronan.

The whole Inn stares in fear and astonishment "GASP. Ronan nods at the guards and a shady figure walks in. A man... A creature... Dressed in black from head to toe. A big floppy hood covers his face. Slowly Ronan's follower raises his hands muttering something under his breath, then suddenly Emerald is gasping for air as life entered his still-warm body. At the same time, Delphine Laveau feels a burning sensation on her left shoulder and grunts in pain, Chiron the Centaur

Q12. Solve for x°



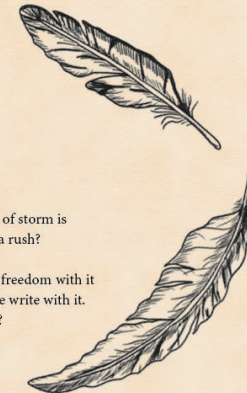
Q13. Solve for x



rushes to Emerald's side. The hooded figure lowers their hands and exits the Inn. In his place is now a pair of huge pitch black feathers and scratches on the wooden floor. Ronan's last words were "Start now, head north, we will bring reinforcements as soon as possible" and left the Inn. As the door opened, shadows devoured the lights, leaving everyone in the silent darkness.

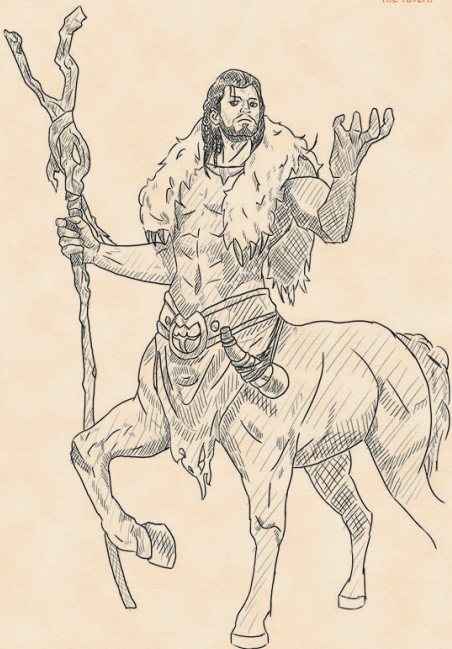
Q14. What kind of storm is always in a rush?

Q15. Birds soar freedom with it and people write with it. What is it?



Chiron helps Emerald stand and suggests that the group should head out and refill their medical kits before the shops close. Chiron has a gentle look on his face, kind and approaching. His short dark hair, trimmed beard and his profound jawline can't compare to his smile though. And those eyes... Ahh! those eyes, as dark as charcoal, a single glance can set someone's heart on fire... He stands with pride as a grey furry scarf brandishes in the air.

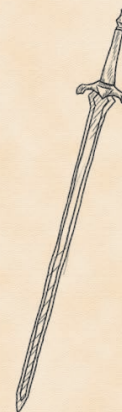
Q16. You have two hourglasses. One empties in 7 minutes. The other empties in 4 minutes. How can you use these two hourglasses to measure exactly 9 minutes?



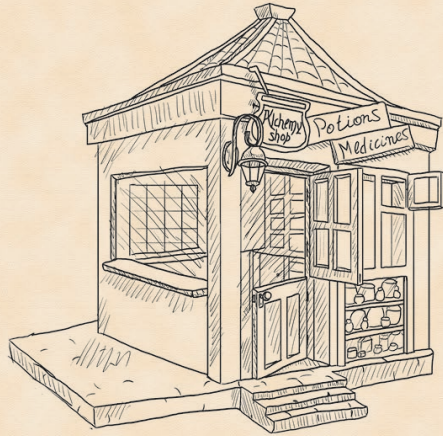
Last but not least, is Jorahel, the Jewish paladin. His lust for money rivals only his need to twist his Bohemian moustache. He thought it looked cool on a bard and decided to replicate it... Now he wanders the streets wearing white t-shirts with extremely low neckline and white rigid leather pants... Good Lord!

Q17. What are the values of A and B?
 $A+B=A*B=A/B$

Q18. Solve for x and y
 $x^2-8x=-15x^2+y^2=25$
 $2x+y=10$
 $x+y=?$



Chapter 2 Alchemy Shop



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Alchemy Shop

Our heroes move on with their new quest as fast as they can manage, organising equipment, preparing some food, buying booze... Feeling confident they exit the Inn and head to the northern gate. There beside the huge pillars of stone and moss was a small alchemy shop, Mr. Gibble's shop. Mr. Gibble is a gnome, old, slightly grumpy, but has many wares and knowledge on his wrinkly back. Laveau spots Mr. Gibble trying to lock his shop and she quickly rushes to use her charms to persuade him to open the store for a few more minutes, so the group can refill on potions. Mr. Gibble readjusts his glasses and groans, but succumbs to her... Curvy physique. Mr. Gibble opens the door and lights a match. Aimlessly he's trying to light the candles in the room, his hands shaking so much that he can barely keep the match from going out. Laveau steps in to light the candles with her magic. "Show off" mumbled Mr. Gibble as he stepped behind the counter. Emerald rushed in like a maniac and started asking about potions.

Q19. If 4 potions cost 30 gold and the ingredients to craft a single potion cost a total of 6 gold, which option is more beneficial to the party?

25

Chapter 2

"Potions, potions old man, do you have any?" he barked. "Lotions!" replied Mr. Gibble. Turns out that Mr. Gibble had lost his hearing from one ear completely and his other ear is following the same path. Emerald kept shouting. "POTIONS!", "P O T I O N S", "We want POTIONS!". For a mere moment Mr. Gibble's look changed, now his totally expressionless face has a huge smirk. He searches for a while and then presents a flask with a vibrant blue liquid. "This will do the trick, I know it works for me and me wife" he exclaimed happily. Laveau blushed and explained once again, more civilised this time that they are not looking for "under the sheets" potions, but for stami... Health potions.

Q20. The potion of healing heals 2d6. The scroll greater restoration heals 3d4. Which one should i choose and why.



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As Mr. Gibble is searching for health potions the rest of the party enters the shop. On the counter are now 4 bottles, from left to right, a small flask, a medium flask, a big flask with a blood red liquid and the flask with the blue liquid. Laveau is suggesting they buy all the healing potions with Ronan's money, but is cut short by a loud snarl. The Jew hugged the coin pouch, hissed and tried to run away. Luckily his rabies-thick saliva got in his eyes and he knocked himself out on a chandelier. After the purchase Mr. Gibble swept them out with a broomstick and curses.

Q21. I have to work every day, every second, every hour, every minute, day in day out. What am I?

Q22. It belongs to you, but other people use it more than you do. What is it?

27

Chapter 3 The Magic Forest



28

The Magic Forest

The night was still young and our 4 brave heroes wandered through the forest. This forest is a gate to the Fey world, so it's overflowing with magic. Fireflies of various colourations with the northern lights drive away the darkness, dimly lighting the woods. The leaves sparkle with every gust of wind. The twilight shines on the rocky track, marking it even in the shadiest crypts. After a few hours of trailing, our brave heroes reach the non-magical sector of the forest.

A loud and agonising scream disrupted the peaceful silence alerting everyone. They all acted out of instinct and formed a circle. It's been 3 minutes since the loud scream, not a single hostile in sight. Laveau broke the formation to investigate some bushes. As she got closer and closer a foul stench surged her nostrils. Even though her disgust was visible, she carried on. Then, she saw it. Emerald was lying there motionless in a foetal position. His cold corpse was the source of

Q23. Where can i store more gunpowder, in a 1,6x1,6 crate or in a 1,6x2 barrel ?

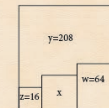
29

Chapter 3

that smell. Decomposers had already worked their way to his vessels leaving a dried empty husk behind. That was no ordinary coincidence. There was definitely magic involved, powerful magic. A few sorrowful minutes is all the extra time the gang can spend with him, besides death is always by the side of an adventurer.

As they made their way they spotted something. Something blue. Something definitely not from here. Something clumsy. Definitely not a threat. It turned out to be an air Genasi looking for mushrooms. He was wearing a brown leather top in contrast with his pale blue body. He has a slightly buffed torso for his size. As far as accessories, besides his sapphire eyes, he rocks a golden acorn chain around his neck and bear hide bracelets around his wrists. He wields a scimitar, but he does not look that experienced. His cotton trousers are nothing out of the ordinary, just a little muddy like his boots.

Q24. Calculate the area of x.



30

The Magic Forest



31

He greets the party with joy to break that awkward silence. "Hello there, I'm Artür Keth, a sorcerer. I'm gathering mushrooms for some potions and brews. What brought you here to this side of the forest?" Delphine Lavaeu steps forward "We are on a mission, a royal needs our help." Lavaeu turns her back to Artür and regroups with the gang. A few moments of indistinct chatter and the whole party asks Artür to join them in their quest. Artür accepted the offer without giving it a second thought. The new group headed North, but exhaustion slowly caught up with them and had to call it a day.

Q25. Artür's basket has 10 large mushrooms 6 potatoes and 2 carrots. A single serving of soup requires 3 mushroom half a carrot and 2 potatoes. How many servings can he cook? Will the servings be enough for everyone ?



Chapter 4 The Beast



They set up camp in a slightly empty and spacious area of the forest. I guess, sleeping on dirt is better than sleeping on rocks and bushes. Lavaeu poofed a hut out of thin air, while the rest are left with an egg on their face. She wiped that smirk from her face and offered them a place in the hut in exchange of... a strand of hair. Wrapping things up, they all slept like logs. A loud howl, deafening screams and cries in despair woke them up. They bolted out of the hut slightly disoriented, but combat ready. Lavaeu was holding a pillow, the jew had his sleeping mask on, Artür was still mummified in his weird sleeping blanket and Chiron... Chiron was still sleeping. A few organising moments later everyone is geared up, including Chiron, and alert.

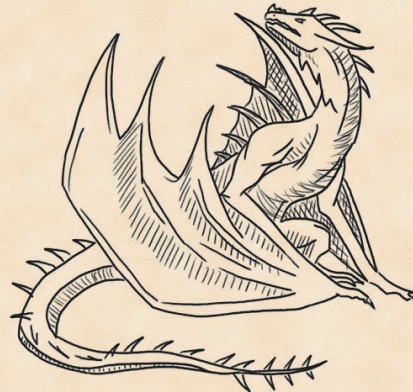
The cries went on and on, getting louder and louder every time. Chiron takes the lead and stealthily follows the sound. The others are quick to follow him into the glade. Rising from the shades into the blueish

Q26. A mother has six children and five potatoes. How can she feed each an equal amount of potatoes? Do not use fractions.

moonlight is a wyvern. Not an ordinary wyvern, a Monarch wyvern. As rare as hen's teeth, it was there standing in all its glory. Its scales shined brighter than the night dimly illuminating the surroundings, its eyes big, fierce with a slit like iris that looked like a million stars. Its wings... Tied up with a rope...

Chiron was quick on his insults, cursing the hunters for going after such a scarce specimen. He cooled off pretty easily though and headed towards the trapped beauty. The wyvern was howling and struggling to get away. Chiron, in his excitement, didn't walk as calmly as he thought provoking the beast. In an instant Chiron had a trail of blood running down his arm. The wyvern lashed its tail to keep the stranger away. Lavaeu and the others made a move swiftly aiding their friend, who is now dead in his tracks. Chiron exhales and looks back to his group nodding that everything is going to be alright. It's all up to him

Q27. I have a tail, but I'm not a mouse, I have scales but I'm not a fish, I have wings, but I'm not an aeroplane. What am I?



now. While everyone is slowly moving away, the bloodthirsty tail-whips slow down. The wyvern probably tired itself or accepted defeat. Chiron freed the beast with little to no struggle and to no one's surprise the wyvern fled the scene with no grace at all, as it hit a few trees.

Chapter 5 Yellow Brick Road



Slightly sleepy the gang follows the trail through the woods. A small trail of pebbles and grassy moss can be seen between the thick roots. The moss lights up with every step emitting a tiny amount of greenish light. Fire flies with all sorts of colours give an otherworldly atmosphere. After a few minutes of trailing the path the fluorescent lifeforms weaken, leaving the sun to brighten up the day. The sun is now high up in the sky, not hiding behind mountaintops. Lavaeu is now leading with an intense pace. Parkouring through the woods, jumping and sliding from bushes and branches they find themselves on the short cliff. "That must be the road to the mansion!" exclaimed Lavaeu. The cliff is steep, defining the terrain. On the left a rocky slope, on the right forest and in the middle a yellow brick road. The road reflects the trees and the mud, as well as the bright blue sky... Magnificent... The sun's reflection on the road is a nuisance to all, but they carry on with a steady pace.

Q28. The day before two days after the day before tomorrow is Saturday. What day is it today?

Q29. There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there?

Lavaeu got tired and decided to use her feminine charms on Chiron. Turns out centaurs don't mind at all. To be honest, I think, he enjoyed it more than he should. Lavaeu is screaming on top of her lungs with joy, the air is rushing through her dreadlocks, she is doing the hand surfer on the wind. She is riding Chiron... Mounting Chiron like a warhorse. Chiron spots an abandoned chariot a few feet off the road and takes a small detour to investigate. The Jew thinks there might be gold inside and jumps in the back head first. "Guys there are like 6 rolls of silk, a barrel or so with ale and a skeleton here" he barked. "Ooh boy! Would you look at this fine piece of craftsmanship!" said with enthusiasm as he picked up a small wooden box with weird markings. "So you thought that picking up a box in an abandoned chariot with a skeleton inside was the right choice?" questioned the group. The Jew casually opened the box to reveal a shiny diamond and a copper ring. The Jew hid all the barrels and silk in the woods "just in case" and rushed in front of the others.

Q30. One roll of silk is 1m in height and contains 91,4m of silk. How much money would they make if the party sold the six rolls of silk, if the price of silk is 26 gold per square metre?



40



41

Chapter 6 Storming The Castle

The trees seem more distant now, the chariot is far behind them, and the sun is at its highest. Sweat droplets hiss, when they fall on the golden bricks. Finally, the castle can be seen. It's big and spotless, the walls don't look damaged at all. There is no sign of battle or even a hostile act. The gang acts on their toes and hides in some bushes to make sure everything is fine. A few intense minutes pass by and everyone is on high alert, searching for someone or something. Just as Artúr made a move 2 Orcs were spotted patrolling the castle. He casts fly and heads towards a window, passing over the guards without alerting them.

As he is getting closer and closer to the window he manages to locate another patrol on the left of the castle and a few guards inside the garden slacking off. Artúr manages to communicate with the rest of the party to give the go signal. Artúr dispelled "Fly" and fell from the sky



42

43

onto the Orcs slamming their face flat on the ground. Chiron charges with might, stomping the Orcs. As if that wasn't enough, Lavaeu slits their throats. As the bloodshed ends, the other patrol units collide with the party surrounding them. That party flees into the woods, hoping that the dumb Orcs would follow them. The thick trees would make it difficult for them to move freely and thus gaining the upper hand in this troublesome situation.

Chiron was the first to try and attack through the cover of the forest. He lifts his hands, he starts shaking, his fingertips are blue from cold, a thin frosty layer covers his palms, suddenly three light blue knives manifest in front of his fingers. In a blink of an eye the knives launch at the Orcs, stabbing them on the shoulders. Chiron looks back at the party delivering his killing line as the knives explode and flash freeze the surroundings, "I gave them the cold shoulder". The hostile popsicles

Q31. If an enemy is 35 feet in the air and you are 40 feet away from him on the ground, can a spell with range 30 feet reach him? If no how many feet should you move in order to reach him?

44

are shattered one by one with little to no effort, but to their excitement someone noticed the absence of the units and things got out of hand in seconds.

The main gate shocked the ground, as it slammed open and unleashed an army of raging Orcs to the battle field. "WE ARE DOOMED, DOOMED", cried the Jew. Fear and despair overwhelmed our heroes as more and more Orcs came out. High up in the sky, above the clouds a serpent stalks the group. A loud shriek disrupts the pending slaughter. The clouds tear apart, releasing the trapped sunlight to blind the Orcs. A huge shadow protected the gang from the sunlight. Screaming louder than thunder the wyvern landed in front of the group whipping and lashing against the Orcs tearing their numbers down within seconds. Once their numbers dwindled, the group charged on slicing and dicing as they made haste to the mansion.

Q32. If Chiron, the 950 kilos centaur, is running at a speed of 12 metres per second, collides with an 113 kilos stationary Orc, calculate the V' of Orc, if Chiron's $V=7\text{ms/s}$ after the impact.



45

Chapter 7 The Search

The bloomed garden looked nothing like the battlefield outside, it was peaceful, too peaceful to be exact. Sadly the party didn't have much time to admire the fully bloomed flower garden, the white stone pavement and the royal fountain. They charged straight to the main gate, tearing it down from the hinges. "CRACK BOOM" the door slams the stone floor, allowing them to continue. Everyone is now more tense than ever, as the number of foes remains unknown. The dimly lit corridors of the castle echoed every step, every heartbeat and every breath. The stairs to the cellar were more damaged than the rest of the interior, a keen tracker would easily pick up those tracks. The party acted like the professionals they are and went to the upper floor. To their luck all princesses are held on the top floor instead of the cellars. Orcs probably did all those markings as they were in a hurry to get some booze... Nearing the top floor, snarling and hissing devoured the echoes. The group stealthily approached the open door, they could

Q33. I am easy to lift, but hard to throw. What am I?

Q34. What gets broken without being held?



46

47

barely see the inside, but they instantly knew what was going on. There is no mistaking it, that vile stench, the little short laughs, the noise... GOBLINS! A quick conversation with their eyes is all it took for them to coordinate and plan the slaughter. One by one the 6 goblins met their maker. The party didn't use any spells as the bloodlust that consumed them kept repeating over and over again, "BUTCHER THEM". This wasn't an uncommon event, as adventurers sometimes follow their instinct instead of logic. This was a reckless act, for sure, and every action has consequences...

Screams echoed from the chamber, the blood rivered down the stone stairs making them slippery, bodies left and right, guts speared, limbs torn apart. The air had the smell of iron. The party is standing victorious over the havoc, slowly calming down, breathing returning to normal, muscles relaxing and finally the ability to observe non hostile figures

Q35. How many foes you must obliterate in order to craft a 5 kilogram sword if you consider they have 4 grams of iron in them?



returns. Who could have guessed? The Princess was there the whole time, watching as some more random people barged into her home and started killing the random goblins who barged into her home while back and killed all her people. She felt confused, the look on her face was happy, yet terrified. She could not be sure whether these new guys were here to help or make sure she was "dealt appropriately". Laveau's soothing voice filled the room, "Don't worry ma'am your knights in shining armour have arrived", she exclaimed, while posing heroically on Chiron. A faint giggle escaped from the Princess as she stepped forward to bow. "I am Iris Ahgni of Agrabah, the only heir to the throne and head of the family. I'm grateful, thank you for saving me from those horrid creatures", she kindly said. Before anyone could say a word, some stones from the ceiling fell to ground shattering in a million pieces.

Q36. I have mountains, but I am not tall, I have water but I am not wet, I have cities but not people. What am I?



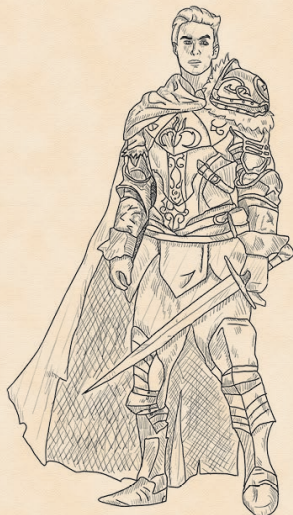
The dust blurred everyone's vision, but a few hints of glimmering light could be seen. The magic barrier that was protecting the Princess in her chamber was no more. The light died down and the Princess was finally free, the seed of getting out had planted its seed. The Jew reached out his hand for her to grab, "Come on, Ronan is waiting for us". That line, this simple line was enough to trigger a panic attack. Iris' bright eyes darkened as she stared into the void, her hands started shaking, her brain shut down, she could only scream "NNNNOOOOO, GET AWAY FROM ME", she cried, as tears fell from her cheek. Everyone was startled. Cold sweat was running down their necks. Slowly they came to piecing the puzzle all together. The extreme details, the exact time it would take them to travel, the slightly bruised garrison and the fact that Ronan wasn't here. Mumbling all together trying to explain the situation that they work for Ronan, but not actually work for him, which made things unclear. I think they meant to say that they didn't

Q37. An object moves along a straight line with an acceleration of 2 m/s². If its initial speed is 10 m/s, what will be its speed 2 s later?
 $v = u + at$

know his evil deeds when they took the quest or they don't want to take part in his actions? I don't even know at this point, everyone has another shady motive to keep going. Laveau is after hair... Chiron is trying to remake new memories, the jew is hoarding gold like a dragon and Arthür... I think he wants mushroom soup... ?

Q38. A ball is thrown upwards and it goes to the height of 100 m and comes down.
a) What is the net displacement?
b) What is the net distance?

Chapter 8 The Twist



Interrupting the mumbling was Ronan's deep voice, "I see your mission was a success", "clak thud" said as he threw 3 leather pouches in front of their feet. He squinted his eyes as he scanned the room, something was missing, he could feel it, but he was not quite sure what it was. "I thought I hired a Minotaur... Nah, it's just my imagination". His monologue was interrupted by a barrage of questions "Why is she afraid of you", "What did you do to her", "You assaulted the Palace", "What are you doing here"... "Take your gold and leave", said Ronan with a serious tone. "No, we won't. We are adventurers. We have standards. We are not mercenaries." Laveau said, "We demand answers" and she prepared for battle. Ronan threw 4 more pouches, "Tripled the amount, hope this satisfies your questions". You can feel the tension in air Laveau, Chiron and Artür are observing Ronan and his mage... And the jew is reaching for the money bags... "NNNOO", the gang shouted united and the jew got his act together and power posed with others leaving the gold behind. Meanwhile,

Q39. What is so fragile that saying its name breaks it?



the Princess was silently trying to open a hatch beneath her bed. The door was heavy, as it was made from the same material as the floor to camouflage. The handle would be accessible only if someone moved a certain stone. Ronan states again, with less patience in his voice this time, "Your mission was a success take your gold and go"... "Silence..." "So be it" and draws his sword.

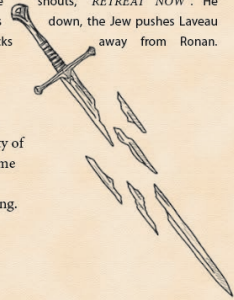
The moment he unsheathed his sword, the hilt turned light blue illuminating his armour. He slams the sword on the floor unleashing a shock wave disrupting the group's formation. Artür wasn't affected by it as he was levitating a few inches above the floor. With only a second to think, Artür charged head first at Ronan only to be tossed on the wall like a bag of human intestines. Ronan's fists were cloaked with the same blue light as his sword, discharging electricity to the air with every swing. The Jew stood up and headed to battle with Ronan.

Q40. What can run but never walks, has a mouth but never talks, has a head but never weeps, has a bed but never sleeps?



Sword vs Fists. One swoop... That was all it took... For Ronan to shatter his sword in a million pieces. Chiron and Laveau fell like rocks and came up with an idea. Chiron casts ice knife and targets the hooded figure, while Laveau casts silence on him. To their surprise he dodged the knives with relative ease yet the explosion did wound him a little bit. Being unable to shout in agony Ronan's spell caster lifted his arms and took of his hood revealing pitch black skin, purple eyes and feathers... a Kenku. As feathers fell from his hands they start to sizzle and burst into flames forming rays that attack Chiron and Laveau.

Artúr managed to get up and spot the princess trying to open a hatch beneath the bed. With a flick of the wrist Artúr creates a burst of air and shatters the door. He shouts, "RETREAT NOW". He grabs the Princess and jumps down, the Jew pushes Laveau into the hole and steadily backs away from Ronan.

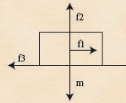


Q41. A train 120 m long is moving with a velocity of 72 km/hr. Find the time it will take to cross a bridge that is 3 km long.

The last to remain was Chiron who couldn't fit inside the hatch. Chiron fought against the Kenku and Ronan, he bravely sacrificed himself to buy time for the others. Chiron took one blow after the other, blood running down his torso, seeping into the floor cracks. Almost out of breath with legs broken, joints dislocated, he gathered his strength and sealed the hatch with his body. In his ears echoed for the last time Laveau's screams as everything went blurry, dark and silent.



Q42. Calculate the total force on the object.
 $g=10\text{m/s}^2$
 $f_1=45\text{N}$
 $m=12\text{Kg}$
 $f_3=20\text{N}$
 $f_2=?$



Chapter 9 The Fall



Down below, our heroes mourn the loss of a comrade, a friend, an adventurer. Their feelings are once more left aside as they know that death walks besides every adventurer. As tears dry on their cheeks, they tunnel through some old ruins that the mansion was built on.

A giant door blocks their path once more. A humongous skull is decorating the gate. As they get closer and closer, the Princess lights up a torch, only to reveal that the group is walking on bones. She casually picked two skulls up and set them ablaze. The staggered party is staring at her, the skulls are enveloped in flames, yet her hands seem fine. Just in case, they all stayed back and whispered about now mentioning anything. Iris threw the skulls in the eye sockets of the door. The earth started to rumble and shake, dust and rock chips fell from the ceiling. The skull opened its mouth inviting them in.

Q43. I turn once, what is out will not get in. I turn again, what is in will not get out. What am I?

Chapter 10 The Library



A light breeze kissed gently everyone's face. As the gate opened wider the darkness it unleashed devoured the light of the torch. Iris knew which path would lead them to safety. She tore her dress and fashioned it into a rope and tied it around everyone's waist. Leading the way through moist rubble. Her pearl white skin glowed with every tiny beam of light. After trailing for what it felt like 30 minutes the darkness was growing weak. Hints of light reflected on the wet surface of the rocks, water droplets sparked with every interaction with light, the whole thing looked unearthly. Magnificent scenery, even in the dark, is one of the perks of being an adventurer. Nearing the end of the tunnel, fluorescent moss outlined a stone door. "PUSHHHH", howled Iris, "COME OONN". The door opened before them as dust filled the air. Deep underground, hidden from the outside world through tunnels and piles of bones is an ancient library.

Q44. What building has the most stories?

Q45. What five-letter word becomes shorter when you add two letters to it?

Iris said that they have to stop Ronan, as she tries to find a certain book. The exhausted party gave little to no attention in her ramblings, trying to get over what happened. She finally found that book she was after. Rushing through the pages she dropped the book on the stone floor "baamm, the sound echoed alerting the party. Iris clumsily approaches the party showing them one picture of a shiny hourglass. The sand was powdered quartz, the glass was made by a lava golem, the wooden beams were from Morph wood, one of the rarest woods in the nine realms. "This particular item can shatter time and space, causing the planes of existence to merge", she said. "Moreover, that particular item is still in my chamber. Ronan will definitely find it, but this is half of our worries", she continued. "Dwell deep beneath the library. You will find a waterfall. There is your last chance to stop Ronan from unleashing the power of the hourglass", she explains. The gang decided to aid her again for the right price. This time the reward wasn't money, but a chance to travel and visit her homeland. She gladly accepted and pointed towards the exit of the library guiding them to their objective.

Q46. There are two sisters; one gives birth to the other, who in turn gives birth to the first. Who are they?



<p>Question 24 (p.30) Calculate the area of x</p>	<p>All shapes are squares so the formula for the area is x^2. I will name the big sides a. $z^2=16$ $z=4$ $w^2=64$ $w=8$ $a=z+x+w=4+x+8=12+x$ $a^2=208+16+x^2+64$ $(12+x)^2=288+x^2$ $144+24x+x^2=288+x^2$ $24x=144$ $x=6$ $x^2=6^2=36$</p>
<p>Question 25 (p.30) Artu's basket has 10 large mushrooms 6 potatoes and 2 carrots. A single serving of soup requires 3 mushroom half a carrot and 2 potatoes. How many servings can he cook? Will the servings be enough for everyone?</p>	<p>The party has 4 people so to make soup for everyone we need $4 \times 3 = 12$ mushrooms $4 \times (1/2) = 2$ carrots $4 \times 2 = 8$ potatoes No, the serving will not be enough for everyone. 1 party member will not eat soup.</p>
<p>Question 26 (p.30) A mother has six children and five potatoes. How can she feed each an equal amount of potatoes? Do not use fractions.</p>	<p>By making mashed potatoes</p>
<p>Question 27 (p.36) I have a tall but I'm not a mouse, I have scales but I'm not a fish, I have wings but I'm not an aeroplane. What am I?</p>	<p>A Dragon</p>

50

<p>Question 28 (p.33) The day before two days after the day before tomorrow is Saturday. What day is it today?</p>	<p>Friday. "The day before tomorrow" is today; "the day before two days after" is really one day after. So "if one day after today is Saturday," then it must be Friday.</p>
<p>Question 29 (p.39) There are two ducks in front of a duck, two ducks behind a duck and a duck in the middle. How many ducks are there?</p>	<p>Three. Two ducks are in front of the last duck; the first duck has two ducks behind; one duck is between the other two.</p>
<p>Question 30 (p.40) One roll of silk is 1m in height and contains 91,4m of silk. How much money would they make if the party sold the six rolls of silk, if the price of silk is 26 gold per square metre?</p>	<p>$h^2 = 1^2 \times 91,4 = 91,4 \text{ m}^2$ $6 \times 91,4 = 548,4 \text{ m}^2$ $548,4 \times 26 = 14.258,4 \text{ gold}$</p>
<p>Question 31 (p.44) if an enemy is 35 feet in the air and you are 40 feet away from him on the ground, can a spell with range 30 feet reach him? if no how many feet should you move in order to reach him?</p>	<p>$a^2 + b^2 = c^2$ $a=35$ $b=40$ In order to hit $c < 30$ $35^2 + 40^2 = c^2$ $1225 + 1600 = c^2$ $c = 2825^{1/2}$ $c = 53,1$ $53 > 30$ so I cannot hit him. I can't hit the enemy no matter how much I move because he is 35 feet up and my spell has a range of 30 feet 30<35.</p>

51

<p>Question 32 (p.49) If Chiron, the 950 kilos centaur, is running at a speed of 12 metres per second, collides with an 113 kilos stationary Orc, calculate the V of Orc, if Chiron's V = 7ms/s after the impact.</p>	<p>$m1 \cdot v1 + m2 \cdot v2 = m1 \cdot v1' + m2 \cdot v2'$ $950 \cdot 12 + 113 \cdot 0 = 950 \cdot 7 + 113 \cdot v2'$ $950 \cdot 12 = 950 \cdot 7 + 113 \cdot v2'$ $v2' = 950 \cdot (12 - 7) / 113 = (950 \cdot 5) / 113 = 42 \text{ m/s}$</p>
<p>Question 33 (p.47) I am easy to lift, but hard to throw. What am I?</p>	<p>A Feather</p>
<p>Question 34 (p.47) What gets broken without being held?</p>	<p>A Promise</p>
<p>Question 35 (p.48) How many foes you must obliterate in order to craft a 5 kilogram sword if you consider they have 4 grams of iron in them?</p>	<p>$5000/4 = 2500/2 = 1250$ foes to make a sword</p>
<p>Question 36 (p.49) I have mountains, but I am not tall, I have water but I am not wet, I have cities but not people, what am I?</p>	<p>A Map</p>
<p>Question 37 (p.50) An object moves along a straight line with an acceleration of 2 m/s². If its initial speed is 10 m/s, what will be its speed 2 s later? $v = u + at$</p>	<p>Here $u = 10 \text{ m/s}$, $a = 2 \text{ m/s}^2$, $t = 2 \text{ sec}$ $v = u + at$ $v = 10 + 2 \times 2 = 10 + 4 = 14 \text{ m/s}$</p>

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<p>Question 38 (p.51) A ball is thrown upwards and it goes to the height of 100 m and comes down a) What is the net displacement? b) What is the net distance?</p>	<p>a) 0 m because it comes back to the starting point b) 100m (going up) + 100m (going down) = 200 m</p>
<p>Question 39 (p.53) What is so fragile that saying its name breaks it?</p>	<p>Silence</p>
<p>Question 40 (p.54) What can run but never walks, has a mouth but never talks, has a head but never weeps, has a bed but never sleeps?</p>	<p>A River</p>
<p>Question 41 (p.56) A train 120 m long is moving with a velocity of 72 km/hr. Find the time it will take to cross a bridge that is 3 km long.</p>	<p>The total distance the train has to do is equal to the length of the bridge plus the length of the train itself. $3 \text{ km} = 3000 \text{ m}$ $72 \text{ km/h} = 20 \text{ m/s}$ $U = \Delta x / \Delta t$ $\Delta t = \Delta x / U = (3000 + 120) / 20 = 3120 / 20 = 156 \text{ s}$</p>
<p>Question 42 (p.57) Calculate the total force on the object. $g = 10 \text{ m/s}^2$ $F1 = 45 \text{ N}$ $m = 12 \text{ kg}$ $F2 = 20 \text{ N}$ $F2 = ?$</p>	<p>$F2 = m \cdot g = 12 \times 10 = 120 \text{ N}$ $\Sigma F = F1 + F2 + F3 + m$ $\Sigma F = 45 + (-120) + (-20) + 120$ $\Sigma F = 45 - 20 = 25 \text{ N}$</p>

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<p>Question 43 (p.59) I turn once, what is out will not get in. I turn again, what is in will not get out. What am I?</p>	<p>A Key</p>
<p>Question 44 (p.61) What building has the most stories?</p>	<p>A Library</p>
<p>Question 45 (p.61) What five-letter word becomes shorter when you add two letters to it?</p>	<p>Short</p>
<p>Question 46 (p.62) There are two sisters; one gives birth to the other, who in turn gives birth to the first. Who are they?</p>	<p>Day and Night</p>
<p>Question 47 (p.63) Calculate the distance from the library to the catacombs, if our heroes travelled at a speed of 2m/s for 30 minutes.</p>	<p>$U = \Delta x / \Delta t$ $U \cdot \Delta t = \Delta x$ $U = 2 \text{ m/s}$ $\Delta t = 30 \text{ minutes} = 30 \times 60 = 1800 \text{ seconds}$ $2 \times 1800 = \Delta x$ $\Delta x = 3600 \text{ m} = 3.6 \text{ km}$</p>

54

<p>Question 48 (p.66) Calculate this</p> $6 + \frac{42}{9 - \frac{351}{18 + \frac{7}{1 - \frac{428}{603}}}}$	<p>We have to start from the bottom to get to the top. $1 - 428/603 = 603/603 - 428/603 = (603 - 428)/603 = 175/603$ $7/(175/603) = (603 \cdot 7)/(175) = (603 \cdot 7)/(25 \cdot 7) = 603/25$ $18 + 603/25 = (18 \cdot 25)/25 + 603/25 = (450 + 603)/25 = 1053/25$ $351/(1053/25) = (351 \cdot 25)/1053 = (351 \cdot 25)/(3 \cdot 351) = 25/3$ $9 - 25/3 = 27/3 - 25/3 = (27 - 25)/3 = 2/3$ $42/(2/3) = (42 \cdot 3)/2 = (21 \cdot 2 \cdot 3)/2 = 21 \cdot 3 = 63$ $6 + 63 = 69$</p>
<p>Question 49 (p.67) A femur needs around 4000N to break. how fast must I hit the bone with my 8kilogram mace in order to break it?</p>	<p>$\Sigma F = m \cdot a$ $4000 = (8 \cdot 10) \cdot a$ $a = 4000/80 = 400/8 = 20/4 = 10/2 = 5 \text{ m/s}^2$</p>
<p>Question 50 (p.69) Calculate the angle in which the box is moving. C= centre of mass $F1 = 5 \text{ N}$ $F2 = 25 \text{ N}$ $F3 = 10 \text{ N}$</p>	<p>$Fx = F1 + F2 = -5 + 25 = 20 \text{ N}$ $Fy = F3 = 10 \text{ N}$ To calculate the ΣF we need to create a triangle with sides Fx and Fy Now using the pythagorean theorem we can calculate ΣF $\Sigma F^2 = Fy^2 + Fx^2$ $\Sigma F^2 = 10^2 + 20^2$ $\Sigma F^2 = 100 + 400$ $\Sigma F^2 = 500$ $\Sigma F = 500^{1/2}$ $\Sigma F = 22 \text{ N}$ approximately</p>

55

<p>Question 51 (p.70) I express emotion without features, I communicate without a voice, I bridge languages</p>	<p>A Gesture</p>
<p>Question 52 (p.71) If the skeleton can swing his 15 kilograms sword at 50 feet per 6 seconds and you can run 30 feet per 6 seconds, can you outrun the sword if your original distance is 10 feet? If no what will the relative speed of the impact be? How many seconds will it take for the sword to hit you? What is the sword's acceleration?</p>	<p>Your starting point is at 10 feet and the sword starts at 0 feet. $50/6 = 30/30 = 10$ feet per second. The sword moves 10 feet per second $30/6 = 10/2 = 5$ feet per second. You move 5 feet per second $10 - 5 = 5 \text{ f/s}$ The swords relative speed is 5f/s $10/5 = 2$ It takes 2 seconds for the sword to reach you</p>
<p>Question 53 (p.73) How much money would Roman have to pay in order to keep up his deal for the Orc ears?</p>	<p>10 gold per pair. The party killed 6 Orcs $10 \cdot 6 = 60 \text{ gold}$</p>

56

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Chapter 15 Bookmarks

The images on the next page are a small gift to you dear reader.

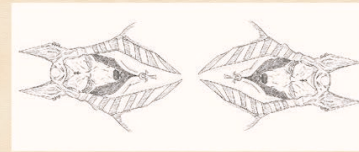
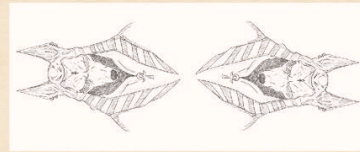
These will help keep track of your progress during study sessions.

Cut the red outline with a pair of scissors or a box cutter.
If you use a box cutter, be careful not to damage your fingers or the back of the book.

Of course, you could simply cut the whole page and then separate the bookmarks.

Lastly, you could just let them be, it's up to you.

Thank you for purchasing this book.





ΓΡΑΜΜΑΤΟΣΕΙΡΕΣ

Myriad Pro

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YZ

abcdefghijklmnopqrstuvwxyz

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

Αβγδεζηθικλμνξοπρστυφχψω

0123456789!@#\$%^&*()

- Ιδιαίτερη, ισοπαχής, χωρίς πατούρες και απολήξεις
- Χρησιμοποιείται στην αφήγηση και στις λύσεις των δραστηριοτήτων
- Εμφανίζεται με μαύρο χρώμα με κωδικό # 000000

Minion Pro

ABCDEFGHIJKLMNOPQRSTUVWXYZ

abcdefghijklmnopqrstuvwxyz

ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

Αβγδεζηθικλμνξοπρστυφχψω

0123456789!@#\$%^&*()

- Ιδιαίτερη, ενδιαφέρουσα, εντυπωσιακή, ανισοπαχής, με πατούρες και απολήξεις
- Χρησιμοποιείται στα περιεχόμενα του βιβλίου, στις εκπαιδευτικές δραστηριότητες, στους διαλόγους και στα ηχητικά εφέ του κειμένου και στο οπισθόφυλλο.
- Εμφανίζεται σε μαύρο χρώμα με κωδικό # 000000

Harrington

A B C D E F G H I J K L M N O P Q R S T U V W X Y Z

a b c d e f g h i j k l m n o p q r s t u v w x y z

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- Πρωτότυπη, καλλιγραφική, καλαίσθητη, εντυπωσιακή, ανισοπαχής, με έντονες πατούρες και απολήξεις
- Χρησιμοποιείται στους τίτλους και υπότιτλους των κεφαλαίων, στην αρίθμηση των σελίδων, των ερωτήσεων και των λύσεων αυτών
- Εμφανίζεται σε χρώμα μαύρο με κωδικό # 000000, στο πρώτο γράμμα κάθε κεφαλαίου και στην αρίθμηση των σελίδων
- Εμφανίζεται σε χρώμα πορτοκαλί με κωδικό #ff8a5f, στους τίτλους και υπότιτλους των κεφαλαίων και στην αρίθμηση ερωτήσεων και απαντήσεων

CF Printpen

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ΑΒΓΔΕΖΗΘΙΚΛΜΝΞΟΠΡΣΤΥΦΧΨΩ

αβγδεζηδικλμνξοπρστυφχψω

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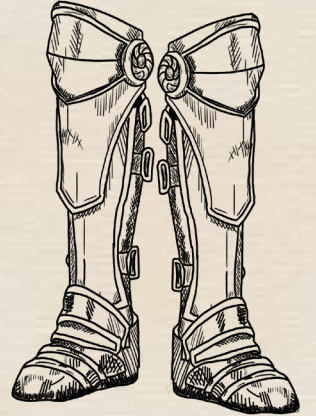
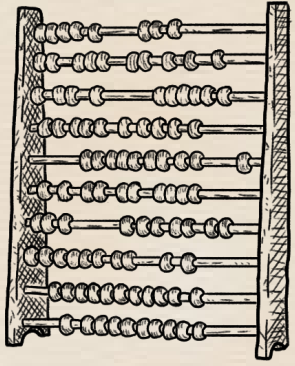
- Χρησιμοποιείται μόνο στην ελληνική έκδοση αντικαθιστώντας την γραμματοσειρά "Harrington".
- Πρωτότυπη, έντονη, τραχιά, χειρόγραφη, εντυπωσιακή, ανισόπαχη, χωρίς πατούρες και απολήξεις

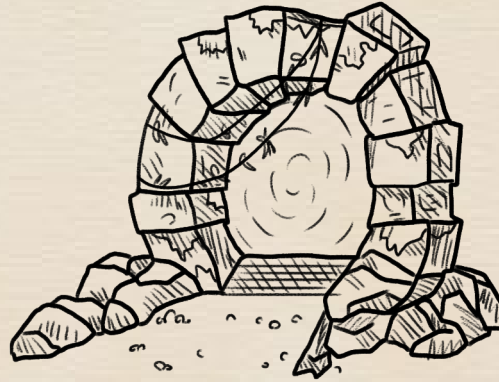


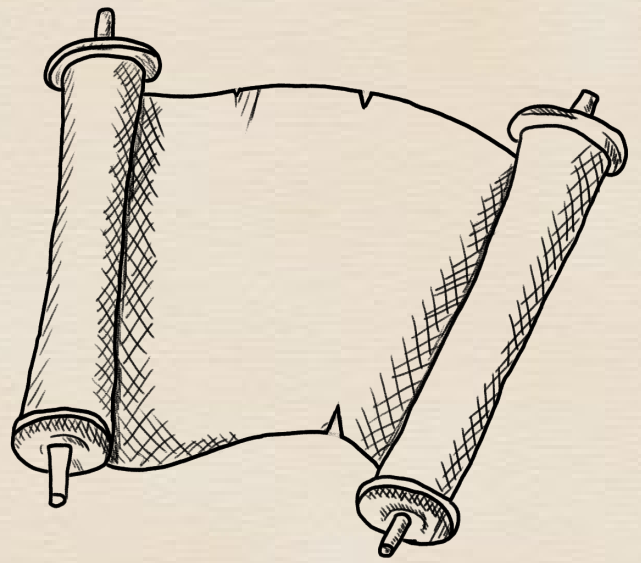
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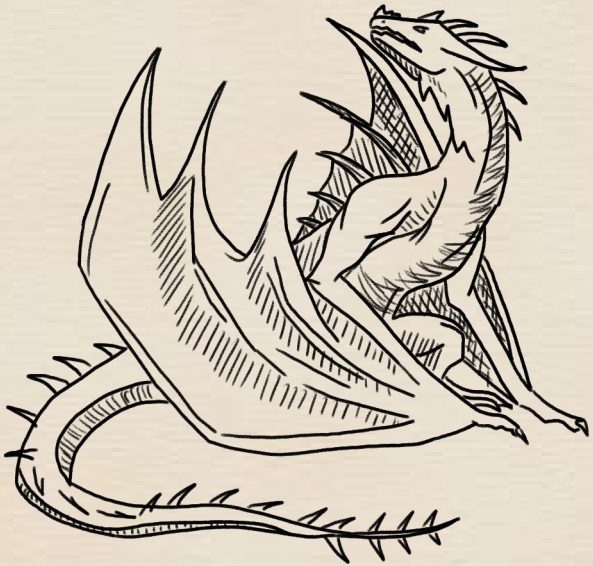
- Ακολουθεί ένα ενιαίο ύφος σε όλη την έκταση του βιβλίου
- Συνδιάζει εικονογράφηση παλιών βιβλίων με τα σύγχρονα κόμικς
- Εμφανίζεται με μαύρο χρώμα κωδικού # 000000
- Εμφανίζεται με γλαφυρές και λεπτομερείς περιγραφές
- Αποτελείται από μαύρο περίγραμμα, που ενισχύεται και τονίζεται με την σκίαση, που επιτυγχάνεται με μικρές μεμονωμένες γραμμές
- Η πυκνότητα της σκίασης ποικίλει ανάλογα με το υλικό που αναπαριστάται
- Όλα τα σχέδια έγιναν στη γραφίδα μου



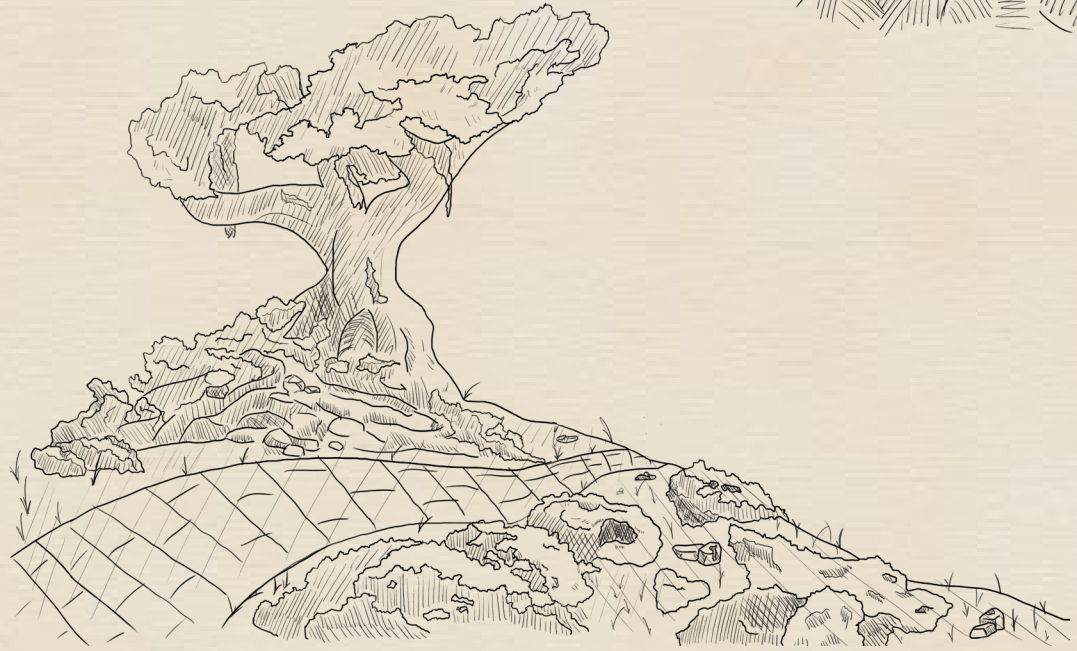
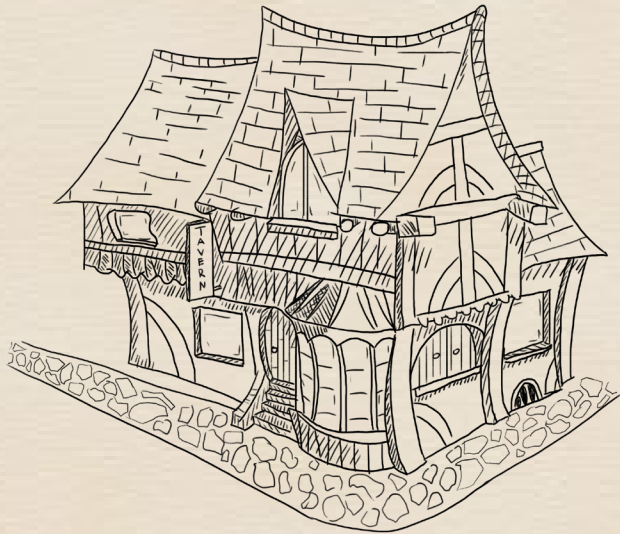
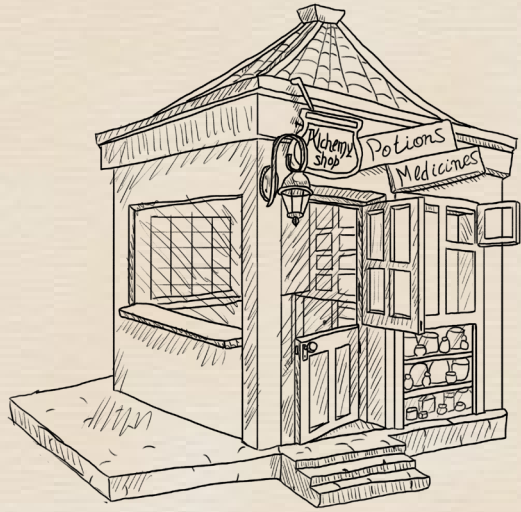








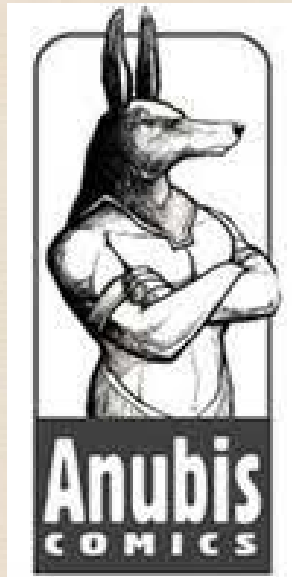






ΛΟΓΟΤΥΠΟ

Πρωτότυπα Λογότυπα Εκδοτικού Οίκου Anubis

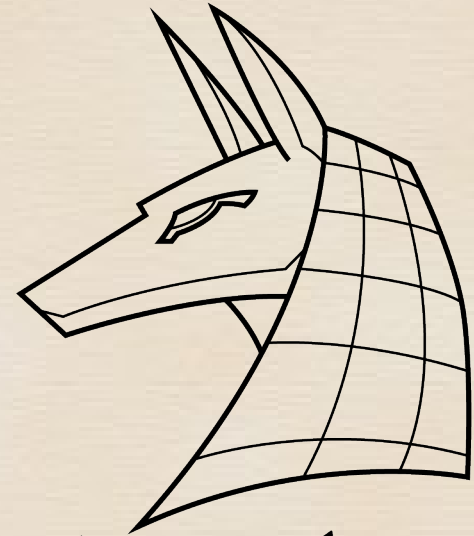


Επανασχεδιασμός Λογοτύπου



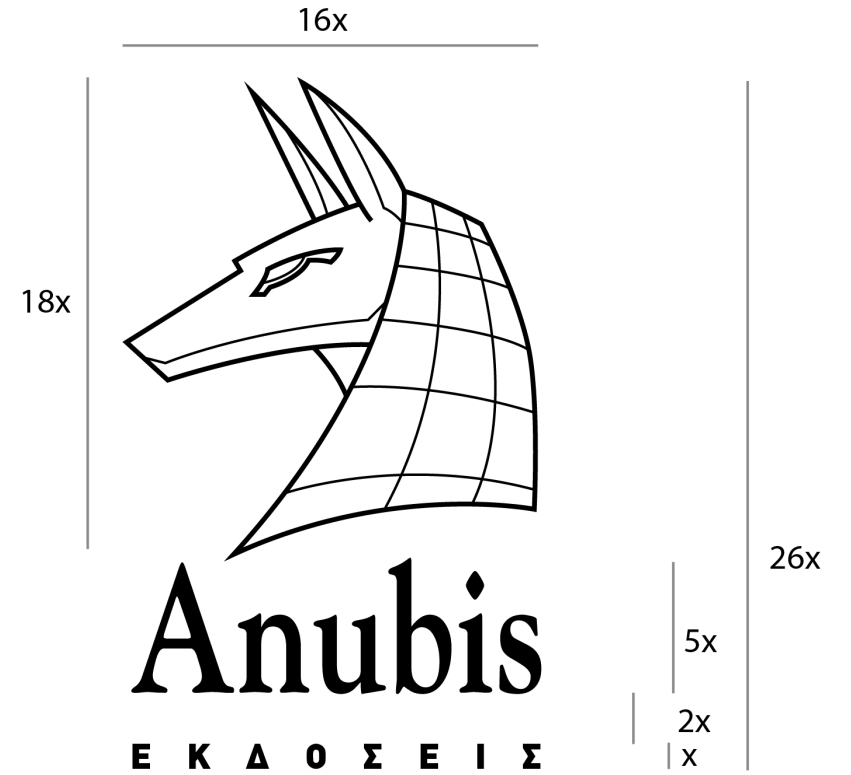
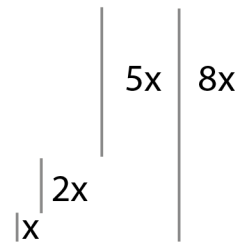
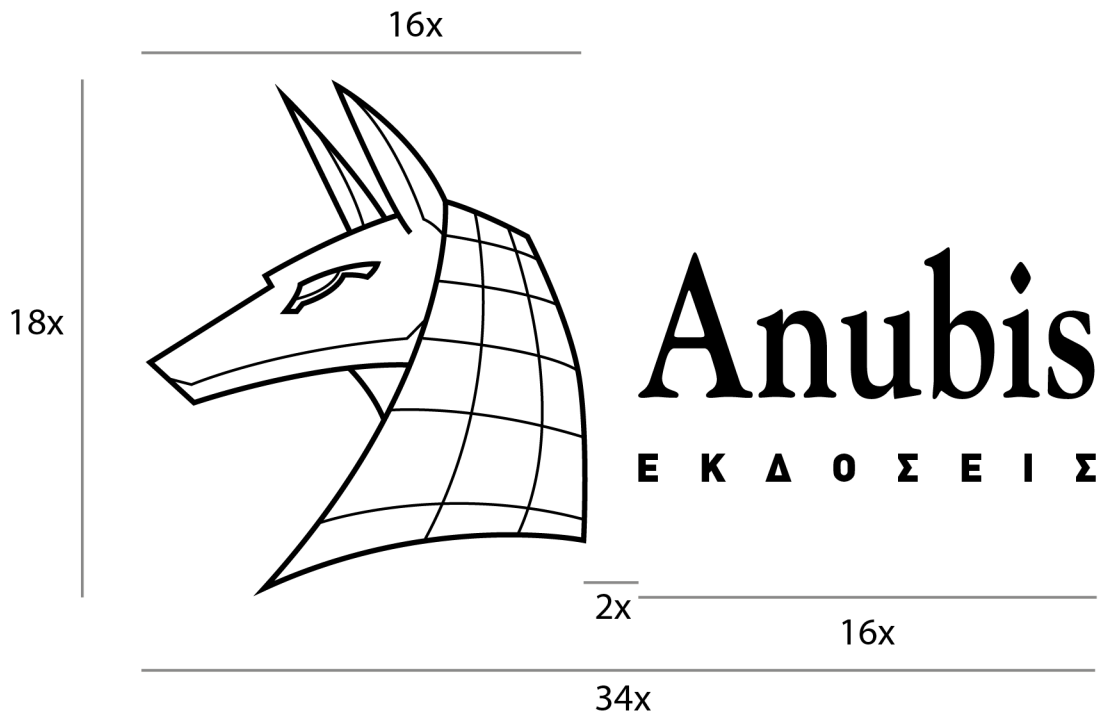
Anubis

Ε Κ Δ Ο Σ Ε Ι Σ



Anubis

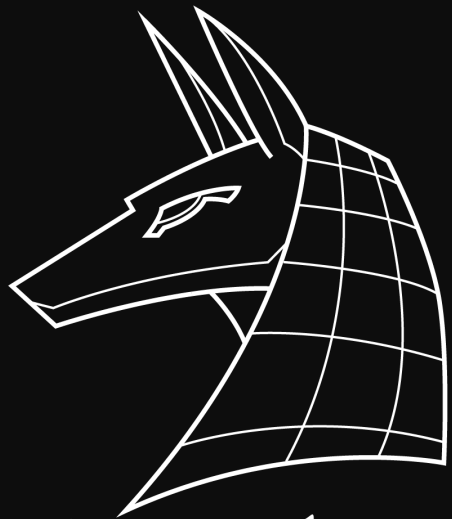
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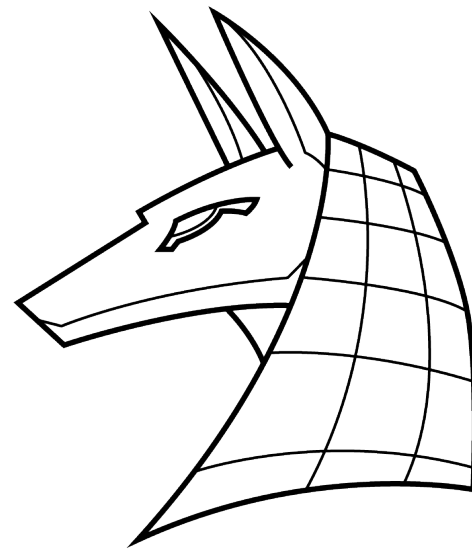
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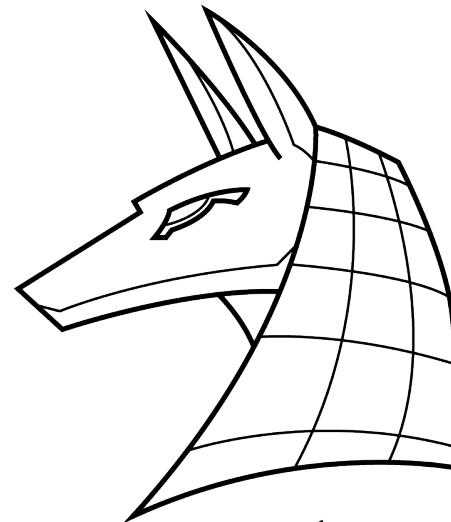
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Anubis

ΕΚΔΟΣΕΙΣ



Anubis

ΕΚΔΟΣΕΙΣ

- Στο σύνολό του αποτελεί ένα στυλιζάρισμα της κεφαλής της Θεότητας
- Έχουν χρησιμοποιηθεί δύο διαφορετικά πάχη γραμμών, για να ξεχωρίζουν τα στοιχεία του προσώπου του Θεού
- Σχεδιάστηκε με μαύρο χρώμα, #000000
- Η λέξη “Anubis” γράφεται με γραμματοσειρά “CF OldStyleExtra”, που είναι ανισόπαχης με ελαφριές πατούρες και απολήξεις
- Η λέξη “εκδόσεις” γράφεται με “CF Din”, που είναι ισοπαχής, με έντονα και σκούρα γράμματα, χωρίς πατούρες και απολήξεις
- Το μικρότερο μέγεθος που μπορεί να πάρει είναι 3 εκατοστά

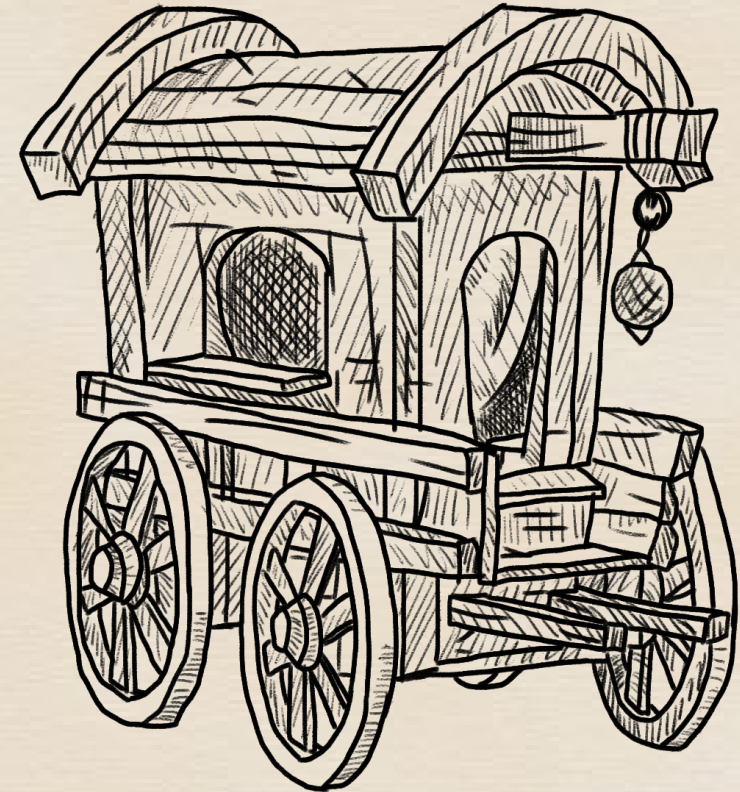


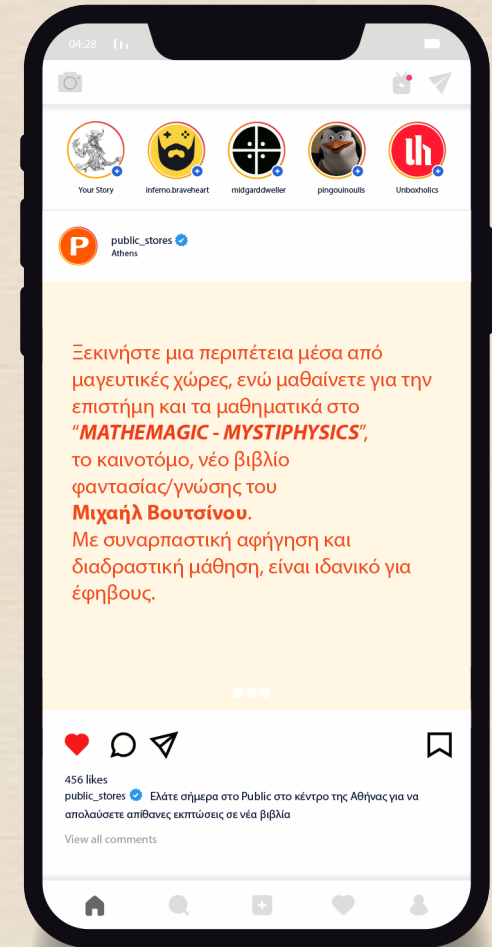
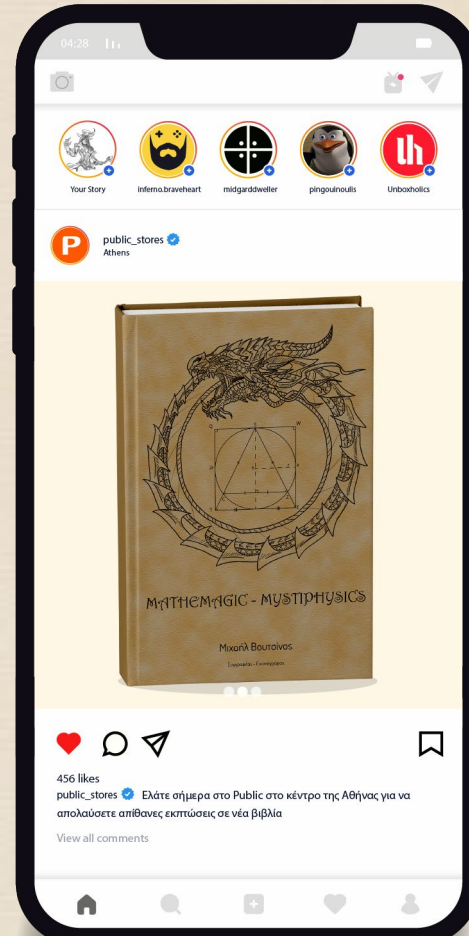
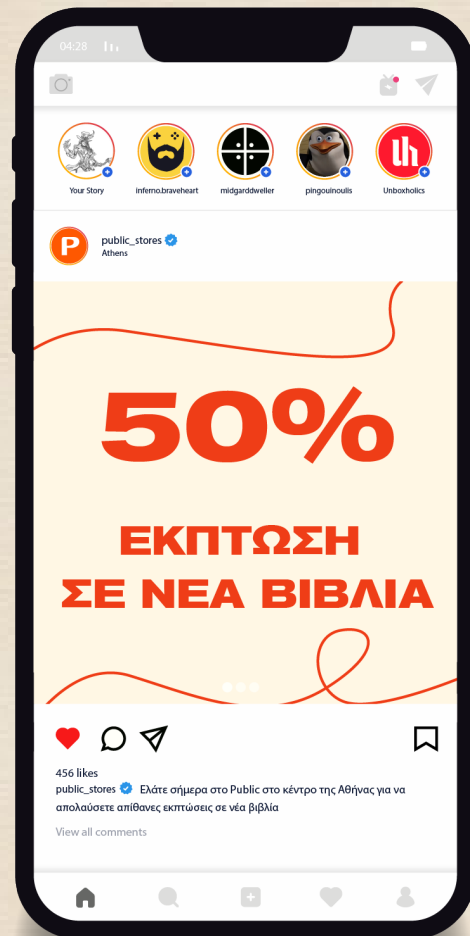


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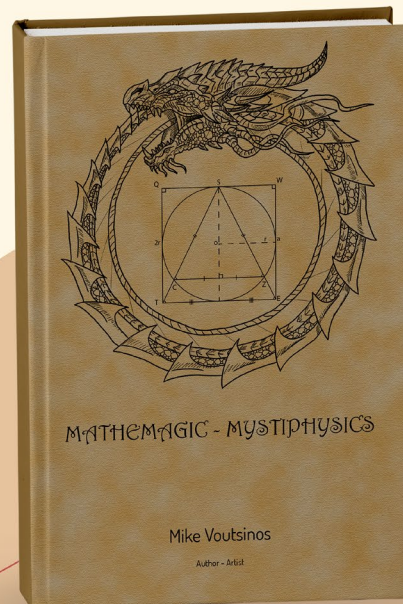
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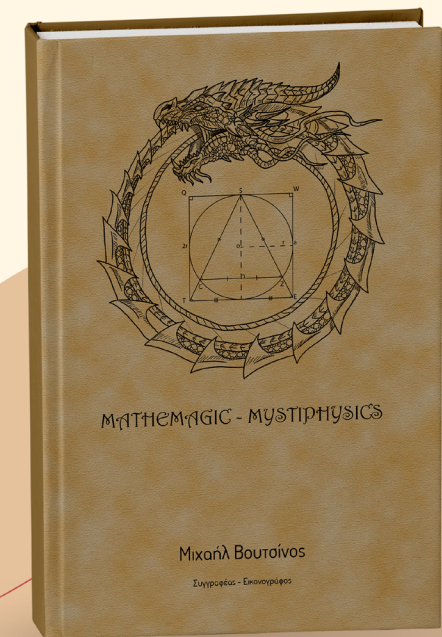
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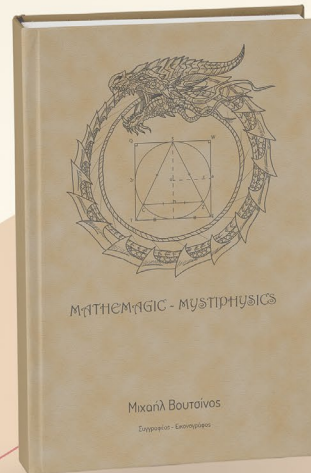
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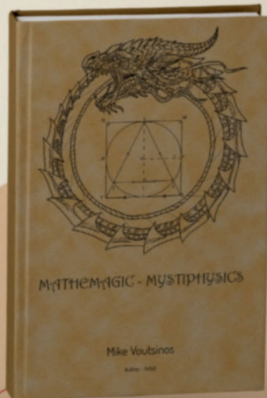
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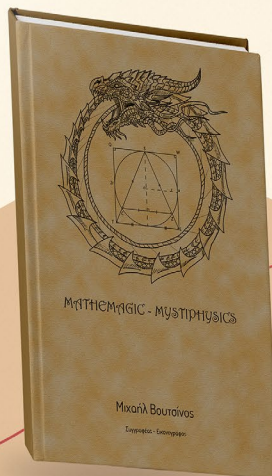
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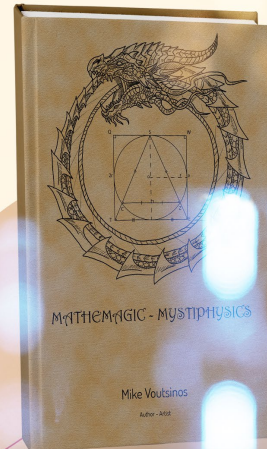
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