

# Triangles

A short story by

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Luk was a huge mathematics fan, and he was only twelve. His room was jam-packed with geometrical shapes and mathematical and trigonometry formulas, as well as aeroplanes, and the blue paint on the walls was half peeling off due to the constant taping up of different posters. He was not an antisocial kid who never played with friends, he actually had quite a lot of them, but his best friend happened to be a girl, Emma. It was a strictly platonic relationship that had begun in kindergarten, and they had times when they acted like inseparable twins. Since neither of them had any siblings, they sometimes called each other 'brother' and 'sister'. They even looked very alike, considering they were not actually related.

Luk and Emma lived in the beautiful old city of Leeuwarden, or Ljouwert in Frisian, which was a unique place full of canals, with a beauty all its own. Being a child who loved to observe shapes, Luk had long since noticed that Leeuwarden was special for the fact that the simplest geometric shape in the world, the triangle, was present in every monument - the bridges, the buildings, even the school in which he was a seventh grade student.

It was close to springtime in March, when the flu epidemic was raging around the school, that Luk fell ill. He was so sick he couldn't get out of bed for days. His mother, as a single parent, had her work cut out juggling her job and her duties as a mum. Her son having the flu was exceptionally tiring for her, and she decided that since Luk was always forgetting to take his medicine, she would take him to see the doctor before it got any worse. But even with the medicine, his flu refused to go away and Luk ended up in bed for three whole weeks. Emma frequently dropped by to bring Luk his homework, but didn't stick around so as not to catch the virus. Finally, at the end of the third week, Luk's teacher from school called asking him to come and sit his maths test. His mother tried to protest but the school was adamant. Luk had to come in to take his test, and that was that.

It seemed so unfair, since Luk had missed so much school, to make him show up just to fail an exam. He spent a lot of time in bed, doing nothing but taking his temperature and swallowing pills. But funnily enough, on the morning he was due to go in, he felt better. The doctor, who was his mother's friend, was always asking how he was doing, and tried hard to set a good example of healthy living. Luk didn't hesitate to call him early that morning. 'I feel better today, Doctor. I ate well yesterday, slept well last night and now I'm getting ready for school.' Dragging the landline with its long cord behind him, he opened his wardrobe and took out a pair of trousers, a T-shirt and a hoodie, got dressed and walked with the phone to the kitchen.

Unusually energetic, Luk's mother opened the fridge and quickly made him a sandwich. Luk distractedly sat down at the table and started wolfing down his breakfast, all the while continuing his conversation: '...They want me to sit a maths test. The teacher didn't even give me a day to catch up. Mum tried talking to the head but they still won't let me take the test later on. Why not? Because they don't want me to fall behind with my schoolwork. A month is a long time to be off sick... Thanks Doc. Yup, I'll drop by with mum next week for a check-up. Bye.' He hung up, took one last bite of his breakfast, grabbed his backpack and hurried over to the door. 'See you later, mum!'

'Don't forget your lunch!' She rushed to the door to give him his sandwich. Luk stopped, came back and put it in his backpack.

'Don't get too close to anyone, okay?'

'Yes, mum,' he said. But nothing was going to stop him from seeing Emma.

As the old-fashioned sound of a school bell rang out across the hallway, the teacher handed out the exam papers. As soon as she had passed Luk and her back was turned, Luk stuck out his tongue as a measure of his annoyance at having been unceremoniously called in to take the test. His classmates laughed silently in appreciation of his antics. Then he looked down at the exam paper. Everything was about Pythagoras's theorem, about calculating the volume of a shape, the exact length of all sides, the square of the hypotenuse. He had not been here for that, and even though he had posters of the formulas on his wall, he had never been taught to actually use them. He looked at the clock. It was 11:15 am. He looked around and saw the teacher staring down at her notebook, lost in thought. He turned his gaze next to Emma's test. She was sitting right next to him, but at a separate desk. Emma noticed him and turned her paper round so he could see it better. Luk nodded slightly and started copying her answers. It was now 11:25 am. The teacher looked up and, seeing Emma just a little too close to Luk, said 'Emma, your attention should be on your exam, not your neighbour.'

Emma shifted back to her normal position, knowing that the teacher would fail her if she did not do as she was told. Luk looked down at his exam paper. He drew a tall clown in a triangular suit, and then added a name: Joker. It was now 11:40 am. A couple of kids turned their papers over. Luk continued to draw. It was now 11:48 am. More students turned their papers over. Luk was sure he was going to fail, and decided to turn his paper in. He left the classroom feeling crestfallen. Emma followed him. 'What happened? Didn't you study at all?'

'I couldn't. I had a really high temperature.' Luk headed towards the main entrance.

'I can help you now if you like,' cried Emma desperately as she hurried after him.

'Too late. But thanks.' He was sunk in a pit of disappointment and just wanted to get out of there. Emma stood in the hallway, watching him. Then the bell rang and she had to go to class.

Luk left, but he wasn't going home. He wanted to walk around the city, to go somewhere, to wander round on his way to nowhere. Spring was definitely in the air, rousing the street artists in the city centre who were already outside trying to drum up trade, and lifting the spirits of the musicians playing their instruments and the people eating at cafes and restaurants. His route took him to Princehof Park, where he sat alone, watching the birds fluttering and singing, listening to the sound of the water and observing the people walking by. All of a sudden he heard a familiar classical tune he had known all his life. It was a romantic, passionate piece called 'The Blue Danube'. He walked over to the musician, who was sitting on a bridge, all alone, playing a violin. She was about fourteen years old with a dirty face and smelly clothes. There was a blanket wrapped around her shoulders. She was a beggar. He stopped to enjoy the last moments of the beautifully-played tune.

As soon as she finished, she launched into 'The Danube Love', gesturing to Luk to put a coin in the box. Luk looked at her, strangely, insensitively, but nevertheless interested in the music. 'I like your song,' he said.

The beggar girl continued to play, silent and determined, focused and undistracted. Luk looked down into the empty box in front of her, and sniffed the air.

'You smell bad. I would never put a coin in your box,' he said. As he arrogantly turned to leave, she glanced up at him predatorily, then quickly screwed up a piece of paper into a ball and threw it at him. Then she went straight back to playing, looking utterly undisturbed and completely focused on her music. Luk spun round but she pretended not to notice him anymore. As he was walking away, she glanced up at him again, noting with satisfaction a pencil mark surrounded by a white dot on his coat.

Luk didn't notice the change on his back, but the white dot was expanding pretty fast. By the time he got home his backpack was too heavy for him and he had to drop it just inside the front door. He looked at his arms – they were turning into the arms of a black and white animated character of himself! He quickly rushed to the bathroom to wash the 'whiteness' off, but all he managed to do was get soaking wet! He was turning into paper. He stood helpless in front of the mirror, screaming, watching his face turn black and white. He grabbed the hair dryer and pushed the button, but immediately his arms started flying around uncontrollably in the strong air current. He instinctively jumped backwards while he still had some strength left and started heading for the door. But just then he heard his mother's key in the lock. He quickly backed up out of sight against the wall, but stayed close to his backpack. His mother opened the door and walked into the kitchen, and while she was putting down her bag and groceries, Luk jumped out from behind the door and disappeared inside his backpack.

The backpack made a slight noise, enough to draw her attention. 'Luk? Are you home?' she called out. She looked around. A smiley face appeared on a Post-it note nearby, along with the words 'I'm at Emma's, studying.' She turned around and picked it up, frowning slightly. 'He wasn't supposed to get too close to anyone,' she thought. 'Still, I can't stop him. He has to do his homework.'

Luk put the pencil down, standing under the note he had just written and taking a few deep breaths. He looked at himself. He was now in the paper dimension, where everything was made of paper, ink and pencil. He took a few steps on the piece of paper, just to see what would happen. He spun himself around weightlessly. He walked in space, just as if he were walking outside. He went over to three triangles, jumped up on them and climbed the highest one. He grinned and suddenly jumped down again. 'HOORAY!' He wrote a tall letter T with his fingers, grabbed the arms of the letter and danced with it. Unaware of the sound of 'The Russian Waltz' playing in the distance, he unconsciously matched his own steps to the rhythm. Then, all of a sudden, he flung his arms around the letter, threw back his head and laughed a carefree laugh.

Just then he noticed a door that said 'OPEN ME'. But there were no keys, only the letter P, which he picked up and used to unlock it. He walked in... and promptly fell into a void, plunging down and down.

He landed on a box, all made of triangles. He staggered up and glanced around fearfully. The Joker he had drawn on his maths paper emerged out of another box holding his notes, moving his arms around and solving problems. He glanced over at Luk and, without acknowledging his rather unceremonious means of arrival, said: 'Could you tell me what the cosine of 26 is?'

Luk stared at him in bewilderment. 'Okay, I get it,' said Joker, 'you're not a mathematician.' Joker came out of the box and starting walking in mid-air, counting in a determined fashion. Suddenly, he turned to Luk again. 'Wait! You don't look triangular.'

Luk was still in shock.

'I'm Joker by the way. I'm a problem-solver. Where are you from, oval headed kid?'

'Leeuwarden.' Luk answered, silently.

'Ljouwert? Our city? I wish I could walk in it and see it all in colour!' Joker was evidently surprised at this visit from the other dimension.

'What do you mean? Ljouwert is full of colour.'

'Good point. Yes, it is full of colour, but only humans and animals from the colour dimension can see it.'

'Where am I?' asked Luk, still staggering to his feet.

'In your maths problems.'

'I don't understand.'

'As I said, you're inside your maths problems,' Joker repeated patiently.

'Where's that?'

'Well, come with me and you'll find out.' Joker started walking towards the door, counting with his hands and writing on his notes all the while. Luk rushed after him and opened the door. A strong white light shone beyond the threshold, and Luk plunged through.

He looked around in utter amazement. He was in an animated city made entirely of triangles! The people were triangular, the cars were triangular, and the buildings were all made of triangles. 'Joker, why is Ljouwert all made of triangles? And why is it black and white? Where are all the colours?' Luk asked him.

'Like I said, it's not the same here as in the colour dimension...'

Luk noticed that every single triangle had a maths formula written on it. Behind the cars there was information about how much fuel they consumed, how fast the clouds passed by, how much heat the sun was generating, what people weighed, how fast they walked, etc. Thousands of formulas all over the place. Luk was entirely surrounded by formulas.

'Wow! You're right, Joker.' Luk followed Joker out onto the street. 'By the way, why do they call you Joker?'

'Good question. It's because I do every single calculation out there in the world.'

'Then why didn't you come to help me when I drew you on my maths paper?'

'You drew me? Hmm... But I've always been here.'

'There were triangles asking me to calculate the length of their sides and work out their volume.'

'Well, triangle theories are simple. Everything in the world is made of triangles. Do you understand?'

'Well, a little I guess.'

Joker stopped by a wall. He picked up a pencil and started to explain. 'This is a rectangle; you can divide it into...'

'Two triangles.'

'Right. And I can divide these two triangles into...'

'Lots of triangles.'

'Any triangle can be divided into two right-angled triangles, and then you can calculate the lengths of the sides using Pythagoras's theorem.'

'That's just what Emma told me! I must go and solve the problems now. Oh, hang on, I can't. The teacher will be giving us our marks back tomorrow! How can I get out of the maths book, Joker?'

'You cannot ever get out!' Joker replied. He laughed hysterically, like he was up to something, then continued walking on down the street, checking the formulas and correcting anything that was wrong. Luk followed him, partly out of curiosity, partly because he did not know what else to do.

Joker walked into Princehof park, checking the sound of the water, the birds, the trees and everything else he happened to pass by. Again, violin music could be heard in the distance. As Joker moved closer to the bridge, Luk recognised the melody. It was his favourite classical tune: 'The Blue Danube.'

'Why can't I just come out of the book?' Luk thought to himself.

Joker heard him and changed the subject. 'Music! Isn't it beautiful? Music and maths go together, like brother and sister! Music helps you become smarter, and maths helps you understand that everything in the world is about music!'

Joker led Luk onto the bridge where the beggar girl was playing. Luk recognised her. 'Say hello to Constance, she's our inspiration!' said Joker, gesturing towards the sitting violinist.

Luk's heart skipped a beat. He had obviously been tricked into coming here after he had humiliated her.

'Hello,' he said, his head hung low.

The beggar girl played an angry tune.

'How did you know I'd met her before?' Luk asked Joker in puzzlement.

'Leeuwarden is colourful in your dimension only, right?'

The beggar girl stopped playing abruptly. Luk couldn't think what to say and there was an awkward pause.

'Play a nice tune, Constance,' said Joker, breaking the silence.

The beggar girl started playing again, this time choosing a well-known, funny little tune by Straus called the 'Annen Polka'. Luk was angry with himself. Joker, on the other hand, gambolled around to the music with a broad grin on his face, just like a little kid.

'I am so sorry, Constance... I didn't know you were...'

The beggar girl again broke off abruptly.

'I am very sorry.' Luk repeated.

Not acknowledging his apology in any way, Constance started playing a grating, deeply disturbing tune that caused the bridge and all the nearby buildings to shudder, stirring up great waves in the canal and making the ground itself shake beneath them.

'Please help me go home,' Luk asked, more seriously than before.

Constance ignored him and carried on playing. Realising his pleas were falling on deaf ears, Luk turned to Joker, who was far enough away by now for Luk to have to run for a couple of minutes to catch up with him. 'Joker, where are you going?'

'Oh, it's you again.' Joker turned to Luk, while at the same time continuing doggedly to solve his maths problems.

'Wait! Don't you want me here?' Luk suddenly felt alone, even though he was standing right beside the figure in the triangular suit.

'I'm busy,' Joker replied.

'Why are you wandering around?'

'I'm not wandering around. I'm checking the calculations in the city.'

'Calculations? Why?'

'I report back to Mother Nature, assuring her that the four basic forces of Nature are still in balance.'

'I wish I could understand what you say.' Joker's words were way over Luk's head.

'You will someday,' Joker remarked, while still counting.

'Well, at the very least, can you tell me how to answer the questions I left blank in the exam?'

There was no reply. Luk waited patiently on the street, watching Joker move slowly off into the distance. Then, to Luk's surprise, he turned and said 'Use your head.'

Luk scratched his head and stood stock still for several moments, staring at the triangles. Then an idea came to him.

It was already 7:30 pm. Emma was sitting comfortably in her pyjamas at her desk in her room, doing her maths homework. A smiley face suddenly appeared on her maths book. 'Emma!'

Emma turned to the window. There was nothing but darkness outside. The curtains moved slightly, ushering in some fresh night air. 'Emma! It's me, Luk. Look, I don't expect you to know where I am or to recognise me, but I know you can hear me.'

Emma looked around again in wonder. She stood up and closed the window. 'I am in your maths book, Emma.'

Emma looked down at the page of her open maths book. Luk gave her a smile in the form of a black and white animated smiley face. 'What on earth?!' She leapt back in fright.

'I know you can hardly believe your eyes, but it's me, Luk.'

'I am going to burn my maths book!' she almost screamed.

'No, sister, it really is me. If you burn your maths book I'll be gone, and you won't be able to do your homework. So please, just listen to me for a minute.'

'I don't get it. How can you be in there?'

'I don't know, but I am. Look, I have to get out of here and only you can help me.'

Just then the phone rang. Emma picked it up. 'Hello?'

'Hi, this is Luk's mum. I was wondering if Luk was still there. He hasn't called me today and he left a note earlier saying that he was going over to your place to study.'

'Who is it?' Luk whispered.

'Your mum,' Emma whispered back. Then she spoke into the phone: 'Yes, he's here. He's been studying really hard and is almost asleep.'

'I can come and pick him up.'

'We haven't finished all our maths homework yet,' lied Emma smoothly, looking at Luk all the while, 'and it'll probably take us all night. My mum will be around in the morning so you don't have to worry.'

'Can I talk to him for a second?'

'Say yes,' Luk whispered. Emma put the phone down on the book. 'Hello? Yeah, mum, I'm fine. I was just taking a nap.' He pretended to yawn. 'I just need to catch up on schoolwork ... Thanks mum. I love you.'

Luk's mum hung up. Emma was still in shock. 'It *is* you!'

'Look, Emma, I have a really big favour to ask. Can you take me to the teacher's desk tomorrow and put your book over the maths tests and count to five? Will you do that for me? Please?'

Emma nodded.

At 10:30 the following morning, during break, Emma walked into the maths classroom and placed her maths book on the teacher's desk, over the test papers. She counted to five as instructed, and then picked up her maths book and sat down at her desk. The teacher entered and, seeing Emma on her own, frowned slightly and asked her why she wasn't eating her snack outside with her friends.

'I'm not hungry. I decided to wait for them here.'

The teacher picked up the test papers and started marking them. Meanwhile, Luk was already inside. He corrected a few of Emma's numbers and then went on to write the answers to the maths problems on his own exam paper. He noticed that the pages above him were disappearing rather quickly. He picked up the pace, racing to finish his paper before it was too late. He had just deleted the drawing of Joker and had managed to scribble the last answer to the last problem when the teacher reached out to pick up his test. He did not have time to move, so he quickly assumed the form of a smiley face next to the answer he had just written.

The teacher gave Luk full marks on this test, wrote a big A on the last page and smiled slightly at the cute smiley face. She coloured it in red and put the exam paper down. Luk's smile turned upside down.

Class began. Emma collected Luk's test along with her own. She looked at her own paper first, staring in disbelief. She had gotten full marks! Then she looked at Luk's and recognised his smiley coloured face. She tried erasing the red ink but the teacher had used her ballpoint pen. Eventually she shrugged and gave up. The expression on Luk's face turned to a frown of frustration. 'Take me to the bridge and find the beggar girl. Help me get out of here,' he wrote. Emma nodded slightly before quickly turning her eyes back to the teacher at the front of the class.

After school, Emma found Constance on the bridge. Long before she could see her she could hear 'Blue Danube' being played on the violin in the distance. As she approached the beggar girl the tune changed to 'The Danube Love', and the player made a silent gesture, asking for a coin. Emma stood for a moment to listen to her, and then threw a coin in her box. The beggar girl ignored her and simply carried on playing the wonderful tune. Emma did not move. She threw in a second coin. Constance nodded her head in thanks and launched into the 'Russian Waltz'. Emma stood, listening to her. She threw in a third coin and Constance played 'The Dance of the Flowers' by Tchaikovsky. Emma turned to the canal and looked down, taking in the triangular water currents and the people walking by. She went back to listening to Constance, who was still utterly focused on her music. Emma showed her Luk's test paper and pointed to the sad, red face. She threw a fourth coin into the box. Constance stopped playing. Emma waited for her to say something.

Finally, she spoke. 'Take the coins and put them in your bag.'

Emma looked at the box. The four coins she had thrown in were the only ones there. Hesitantly, she bent down, picked them up and put them in her bag. Constance started playing a jolly tune called the 'Viennese Waltz'. Emma kept her eyes on the young musician while slowly backing away along the bridge. Before long her backpack started to grow larger and heavier. Emma put it down on the pavement. A folder near the top of the bag opened and Luk's red head appeared, followed by the rest of him. Emma stared in astonishment then smiled, pulled out a blue marker and coloured in her own cheeks. Both glanced at Constance playing her violin, and then turned back to each other and started jumping and dancing around to the music.

When Luk got home he found his mother drinking sugar water, her face drawn and tear-streaked. 'Where have you been for the last two days?' she asked.

Luk hugged her. 'I was on a very important mission,' he replied, then he showed her his test paper. 'Can I go and play now?'

She laughed in relief and nodded her head. Luk and Emma ran to his room, opened the door and immediately stopped short in disbelief, their jaws dropping in astonishment, for there, standing before them was Joker, in colour, measuring Luk's room with a tape measure.

'It's beautiful out here in the world of colour,' he remarked, 'but there's just so much to measure!'