The Perfect SQUARE

By:
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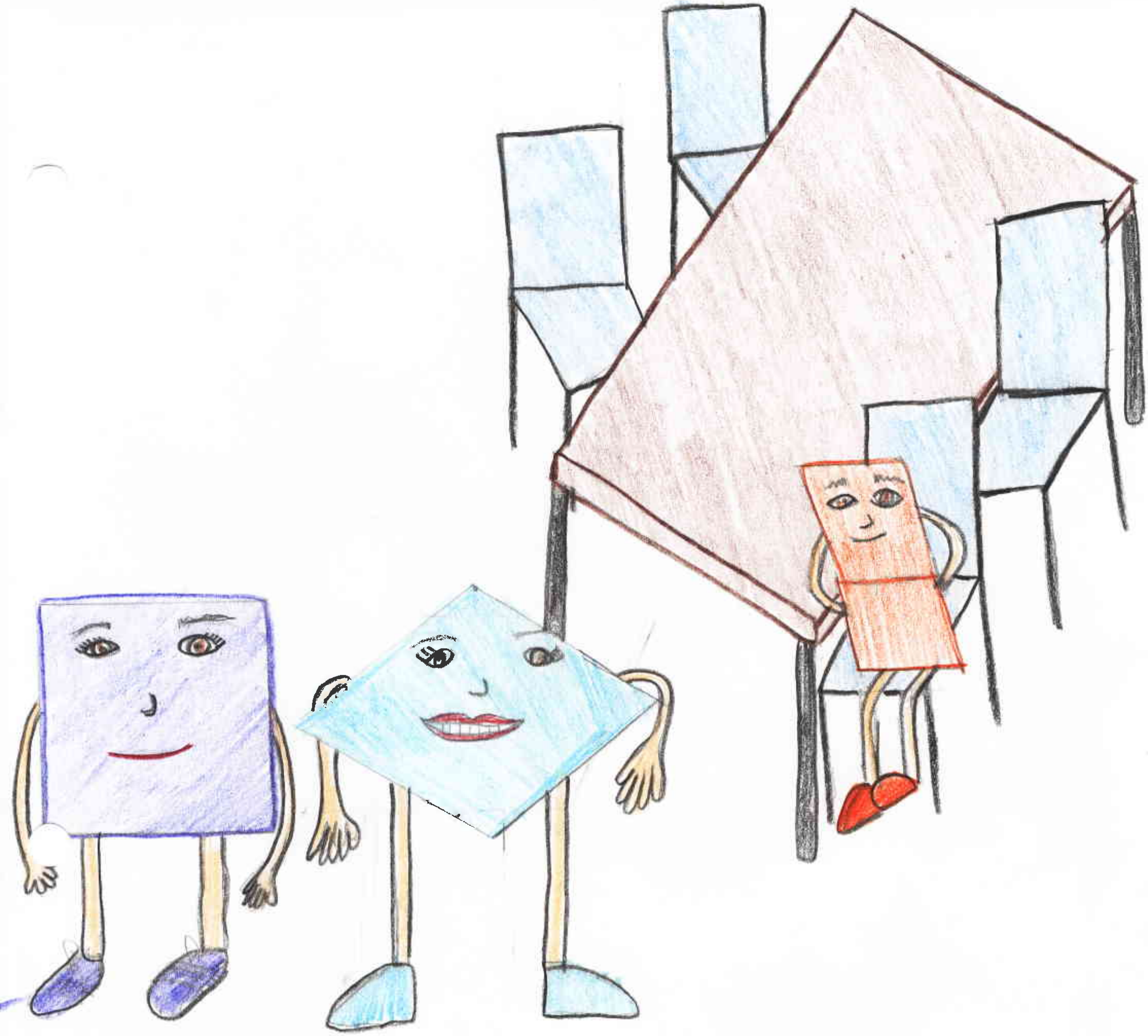
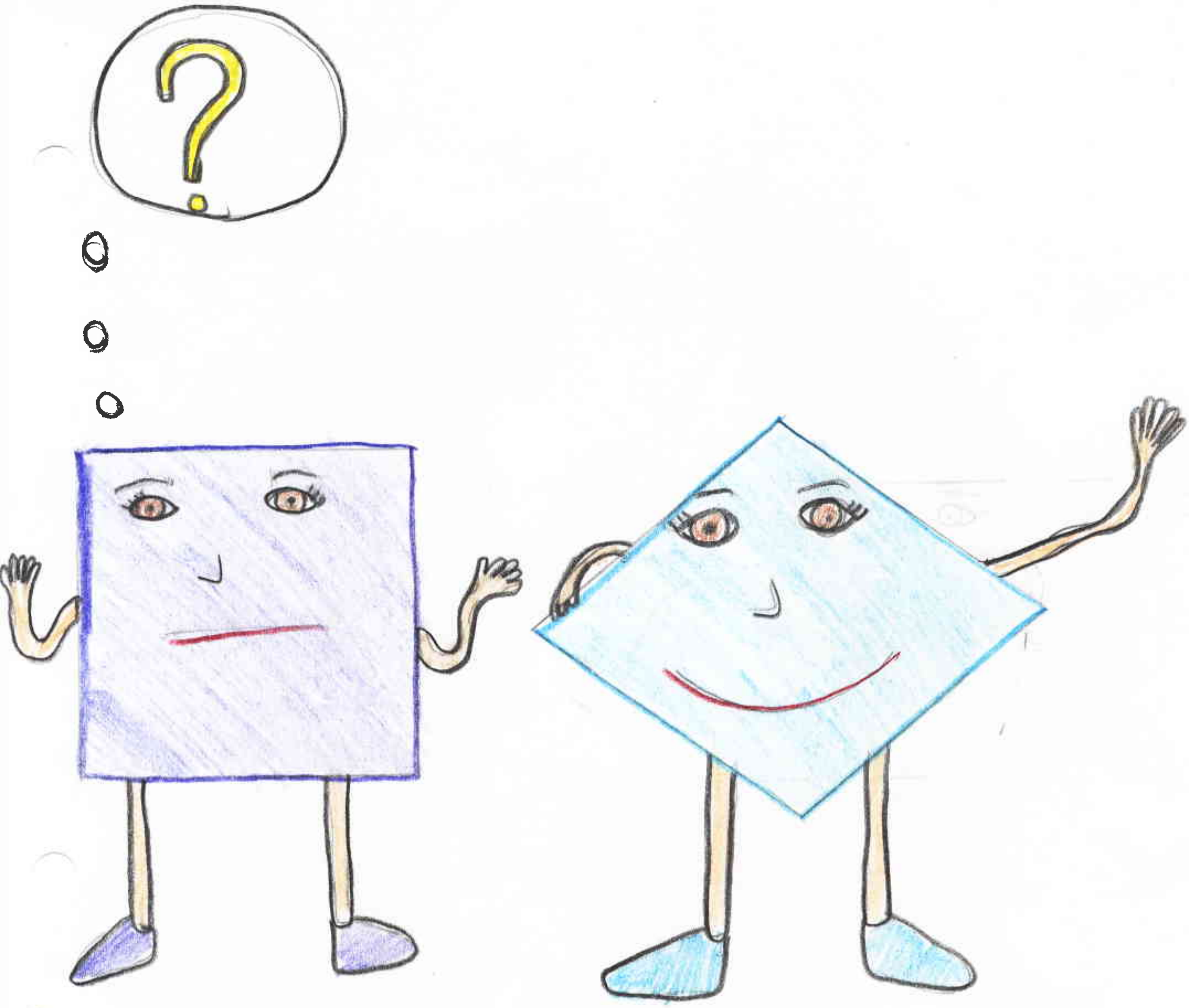
Grace Geison

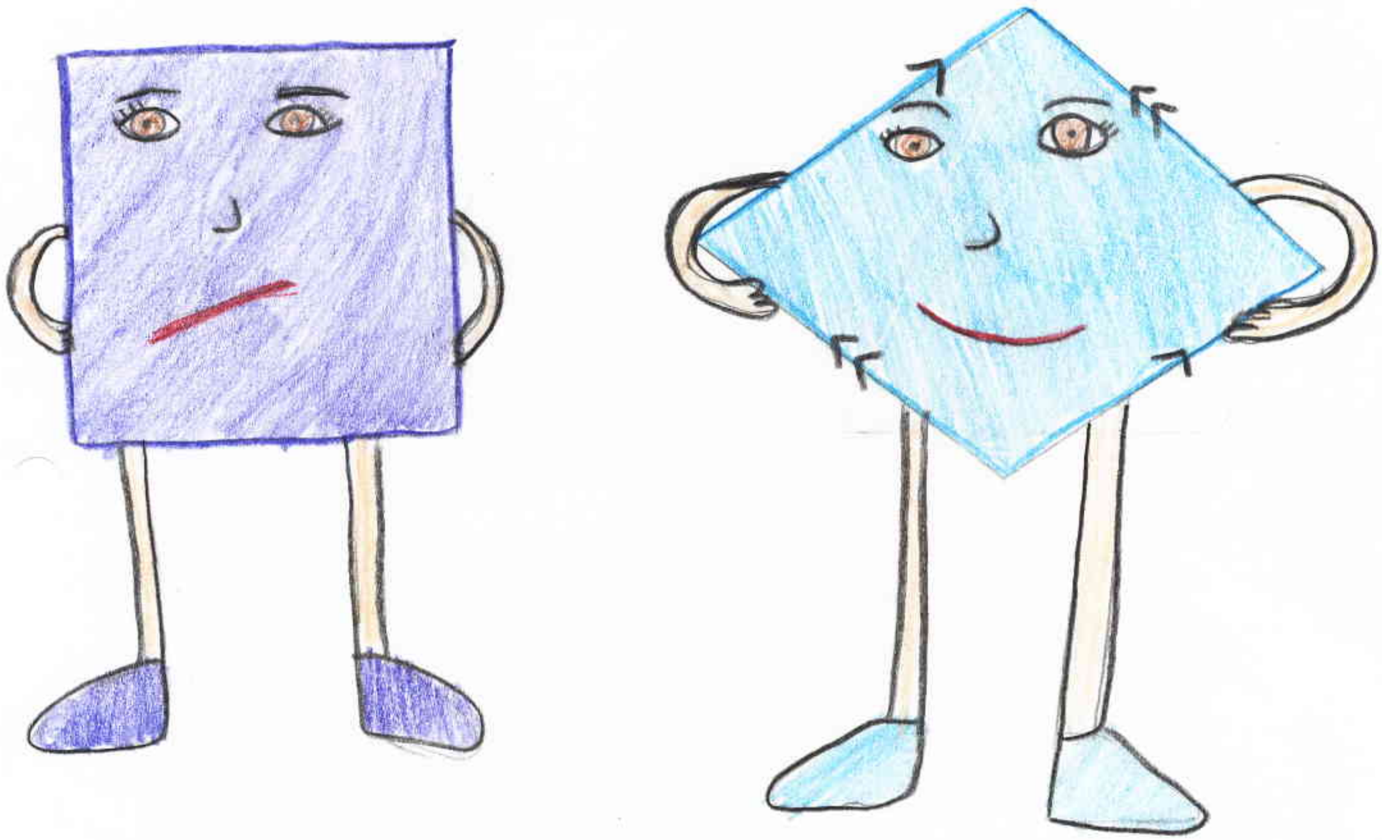


RING! RING! It was time for lunch. Square had already started off the day lousy, failing two tests in a row. She couldn't believe that being a new student at Parallel Gram School, a school of four sided polygons, would be so difficult! Walking through the lunch line, she noticed the families that made up the Gram student body: the not so special Parallels of Gram, the Right Rectangles, and the Rhombuses. Square was left very confused! She didn't know which group she belonged in. Longing to find friends, Square decided to show off her shape and join a family. With little confidence to approach the families, Square decided to visit the Parallels of Gram because their definition sounded less special compared to the other two families. Sitting at the table in the back of the lunch room, the Parallels were very excited to see that someone was interested in them. Not letting Square say a word, the leader of the Parallels of Gram, Sideny began to show off her looks in hopes of impressing Square and eventually accepting her into their family.



"My fellow Gram, I would like to introduce the Parallels of Gram," announced Sideny. "If you would first pay special attention to our sides which form a marvelous slanted feel of our over all shape. The sides of our figure have very unique qualities."

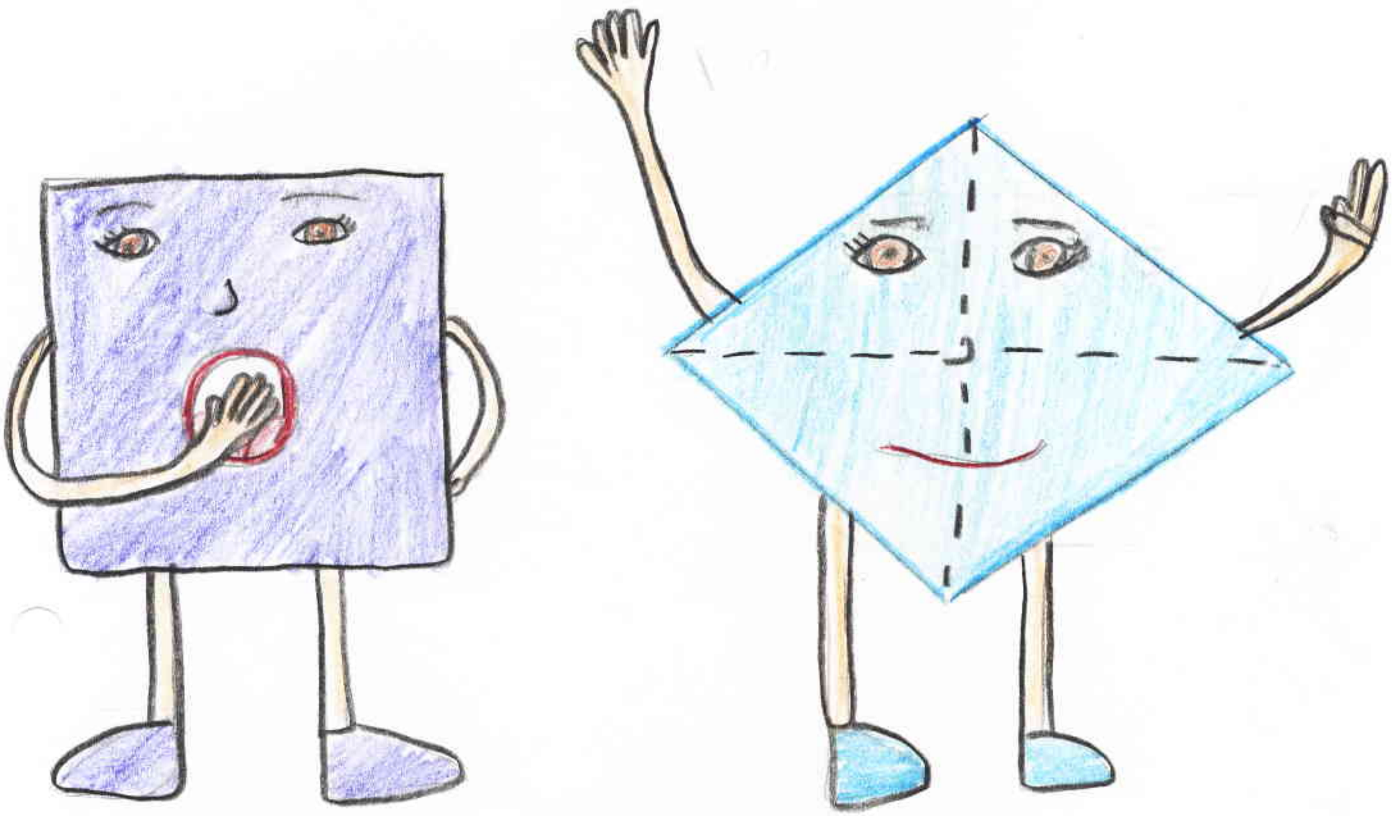
"What is so special about your body's sides?" asked Square. "I see that you have four of them and they are straight lines, but at my old school, Polly Gon High, everyone had straight sides that formed one closed figure."



Sideny quickly responded, “I have many reasons as to why the Parallels are special! Let’s start with the two pairs of the Parallels’ sides. Each set of our opposite sides are parallel which is why we have our name. Sides that are parallel will never intersect and are also in the same plane, or flat surface.”

“Are you trying to tell me that just because your sides are parallel,” Square questioned, “a family was formed?”

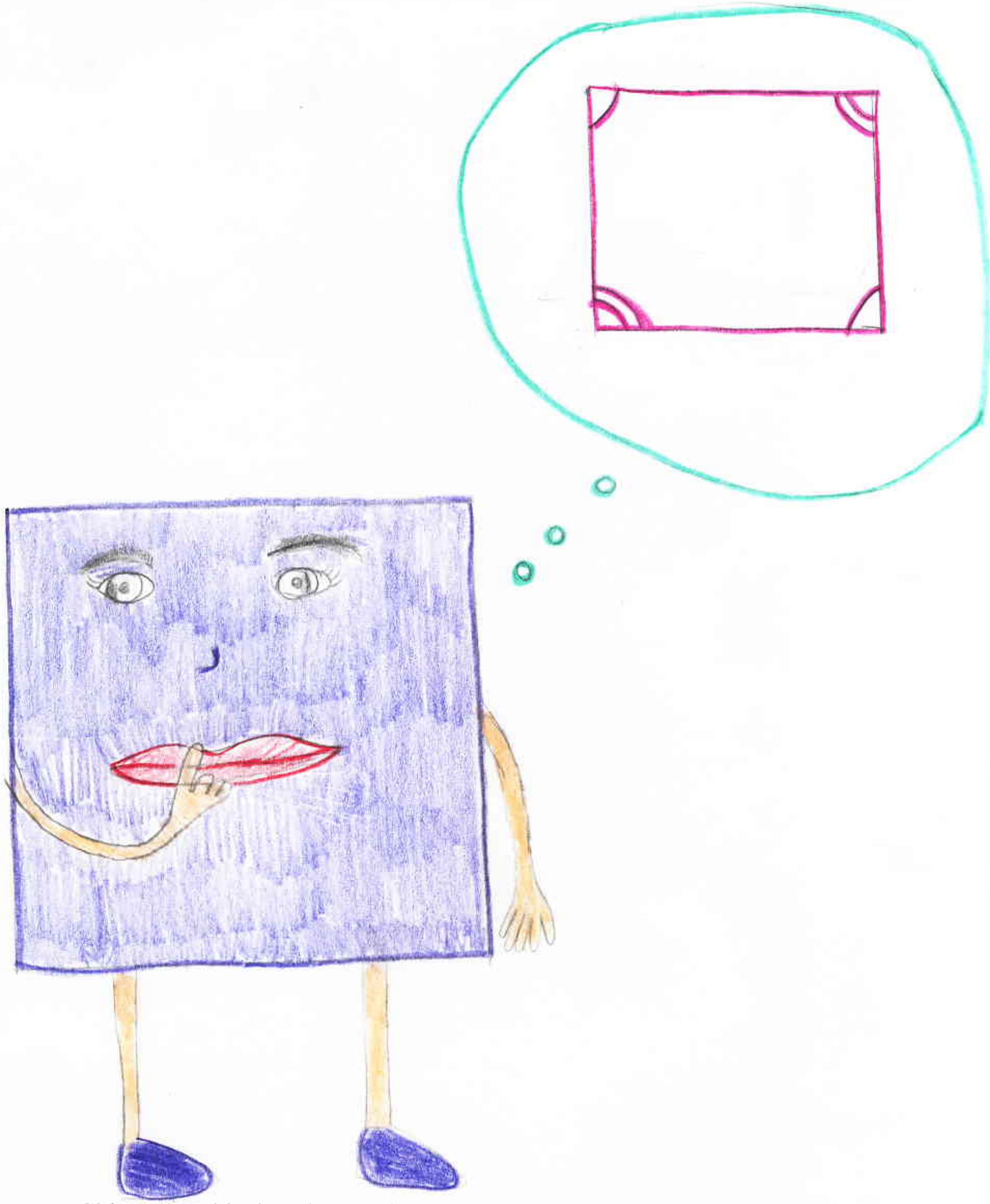
“You are partially correct,” said Sideny. “Our parallel sides make up the definition of our shape, but you must realize that these sides bring other fabulous qualities to our shape. Because our two pairs of opposite sides are parallel, this allows for the two pairs of opposite sides to be congruent, or having the same length. We never have to worry about being uneven!”



"Before you loose my interest," yawned Square, "will you please get off how great your sides are and impress me with a different part of your shape."

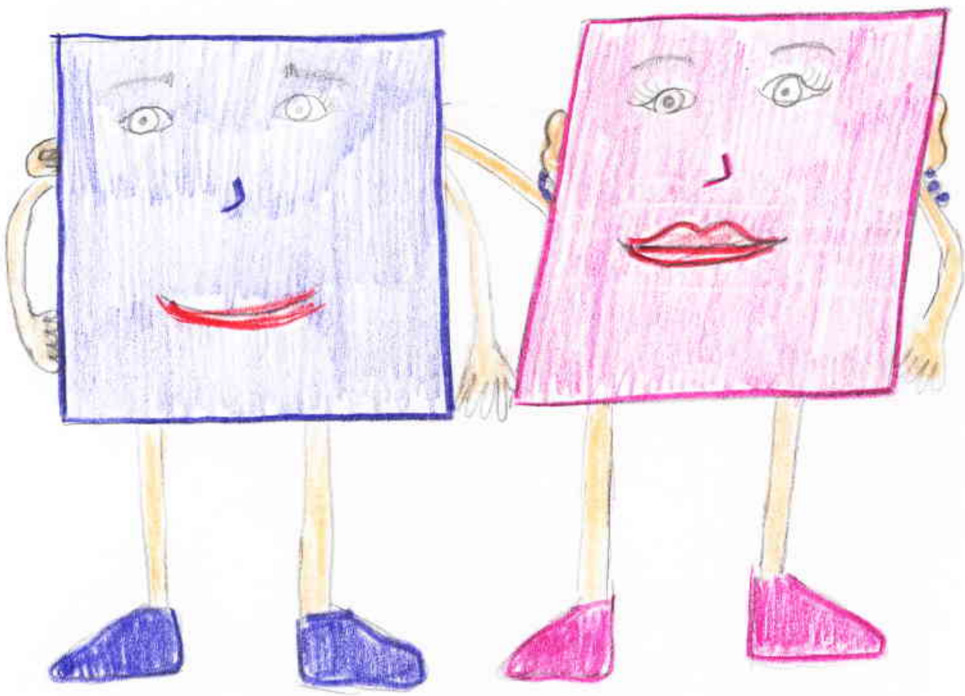
Angered by the remark Sideny brought up her angles, "Okay Miss Smarty Pants, let me introduce you to our four angles, each formed by two sides of our shape that meet at a common endpoint. Just like we have opposite sides, our shape has two pairs of opposite angles. Within these two pairs, the angles are congruent. They have the same measure as the other one. As you can see with me, we can wear two **pairs** of shoes. Also every member of the Parallel family has angles that are considered to be on the same side of the shape sharing a common side that forms half of the angle. These two angles will always add up to 180 degrees, a very magic number, no matter what the case is! We call these types of angles, supplementary angles. Last and definitely not least, Parallels of Gram have two segments called diagonals, joining the endpoints, or vertices, of opposite angles. These diagonals bisect each other! In other words, the two segments divide each other in two congruent parts!"

"Wow!" exclaimed Square, "Your shape seems better than . . .



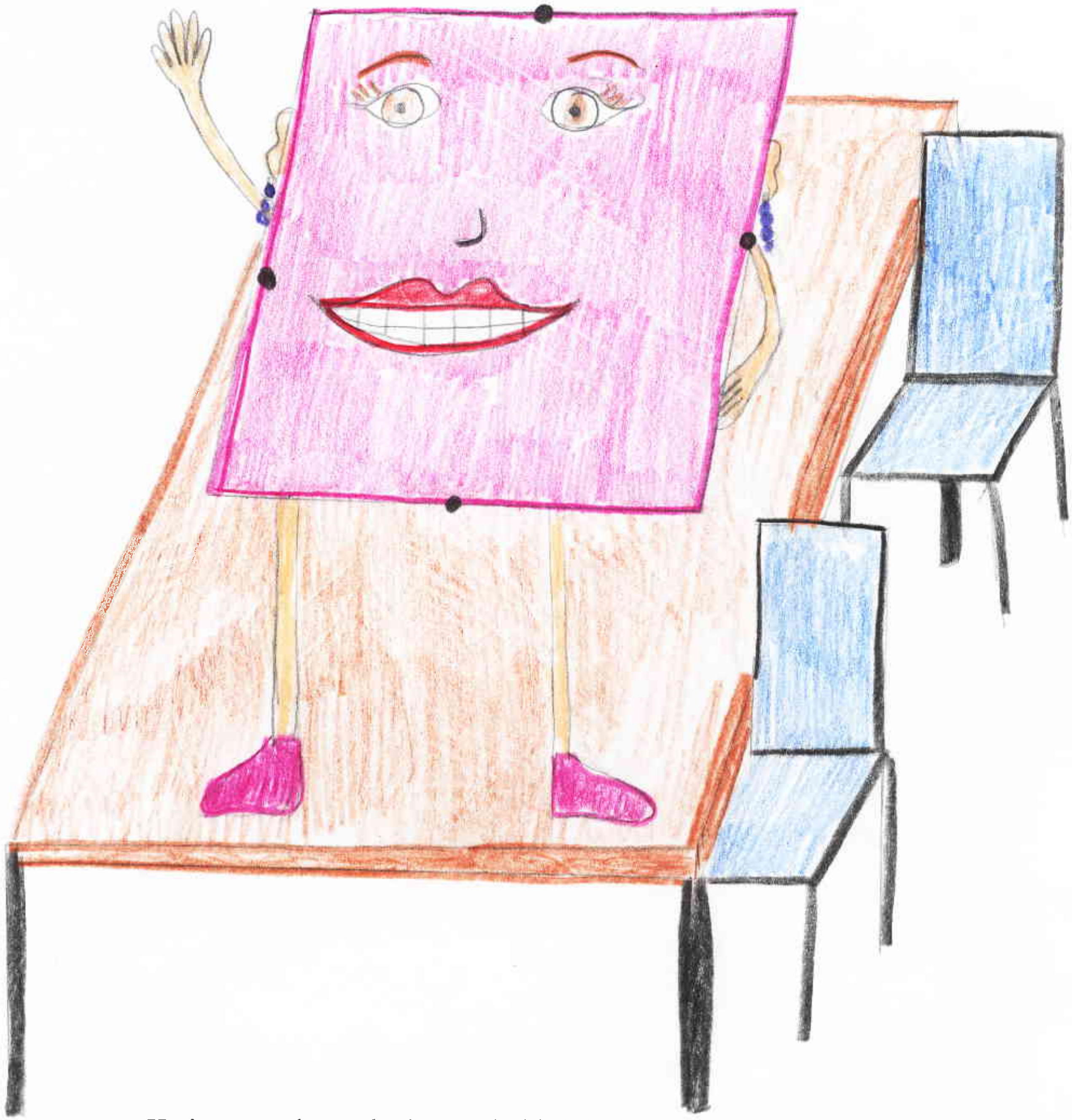
"Excuse me Sideny!" Suddenly, Diana and Dangle pushed aside Sideny and captured Square taking her over to their lunch tables. Here Square noticed shapes that looked similar to the Parallels of Gram, but she sensed that something about them was different. Remembering what features Sideny had informed her of, Square examined Diana the Rhombus and Dangle the Rectangle. Quickly, she mentally checked off in her head the qualities that both the Rhombuses and Rectangles showed:

- Two Pairs of congruent opposite sides....CHECK
- Two Pairs of congruent opposite angles...CHECK
- Same side angles supplementary...........CHECK
- Diagonals bisect each other.................CHECK



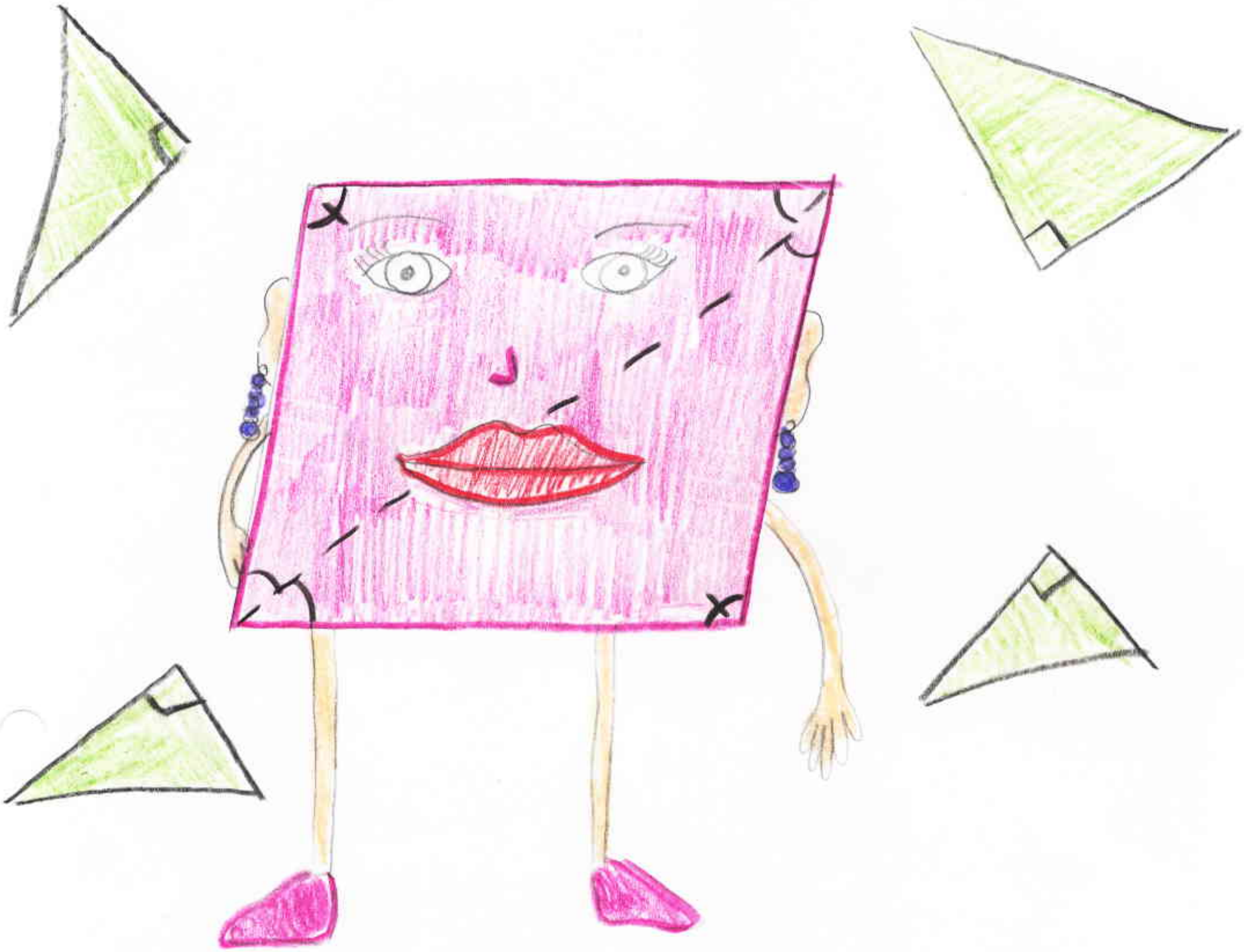
Thinking to herself Square wondered why the Parallels of Gram were separated from the Rectangles and Rhombuses because they all seemed shared the same properties. Why couldn't the shapes all just be friends? This would certainly make Squares job of finding a group to belong to much easier!

"Hello there!" Diana placed her arm gently around Square. "We all saw the Parallels torturing you with their love for their shape. To make life at Parallel Gram School more enjoyable than it has been, let me just make it clear that being connected with the Rectangles and Rhombuses allows a Gram to do whatever their little figure pleases! If you would like to be further informed on the test you must pass to enter the family, then speak up!"



Hesitant on what to do, Square decided she better agree with the bossy, yet beautiful Rhombus. She insisted, "Please, tell me about you. I come from a very diverse school, but around here it seems to be very important to belong to a family."

"You are correct Miss Square. Incase you haven't realized, Rectangles and Rhombus have every single property of the Parallels. That family always seems to forget to tell their 'new' friends that bit of information. Our shapes though, go further than that of the parallelograms. Let's first examine my shape, the Rhombus." Diana stood on top of her table as if it were a runway for a fashion show. "First off we would like everyone to focus in on my 4 congruent sides. Right off the bat, my figure is referred to as equilateral because I have ALL sides congruent, which brings me to my complete definition, a parallelogram with at least one pair of consecutive sides congruent. As if that's not enough, my diagonals will blow you out of this world!"

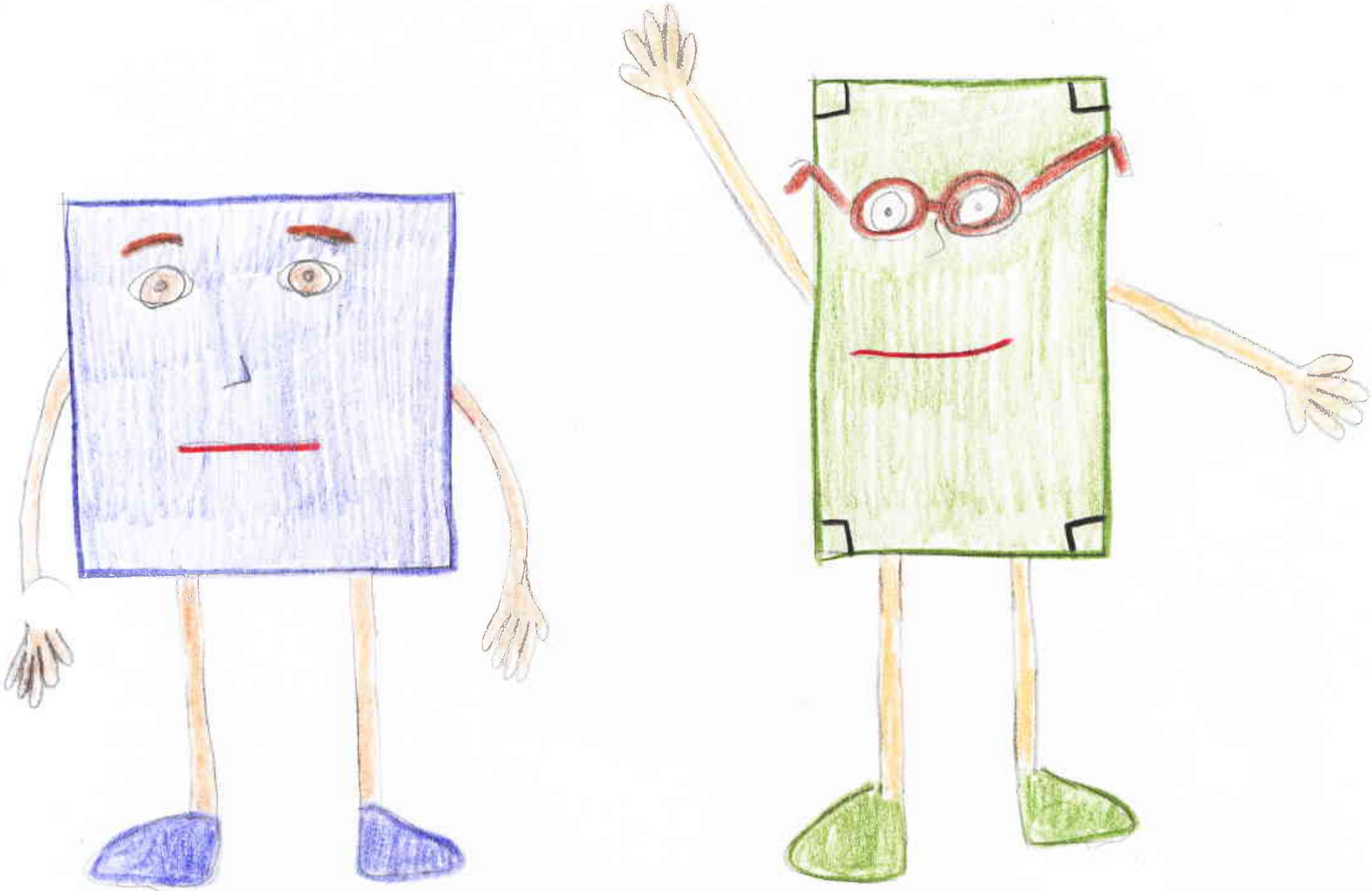


Thinking to herself Square wondered, "What could be so special about two segments that join two nonconsecutive vertices of a polygon?"

"And here we go! Both diagonals are angle bisectors, diagonals that divide an angle into two congruent angles, to the two pairs of my opposite angles. This allows for my fashion to have symmetry. For instance my earrings look very even and balanced when I wear them, unlike another family I know. Working together on the next property, both of my diagonals are perpendicular bisectors of each other which forms a wonderful design to my body. Perpendicular bisectors divide each other into two congruent parts forming 90 degree angles, right angles, where they meet."

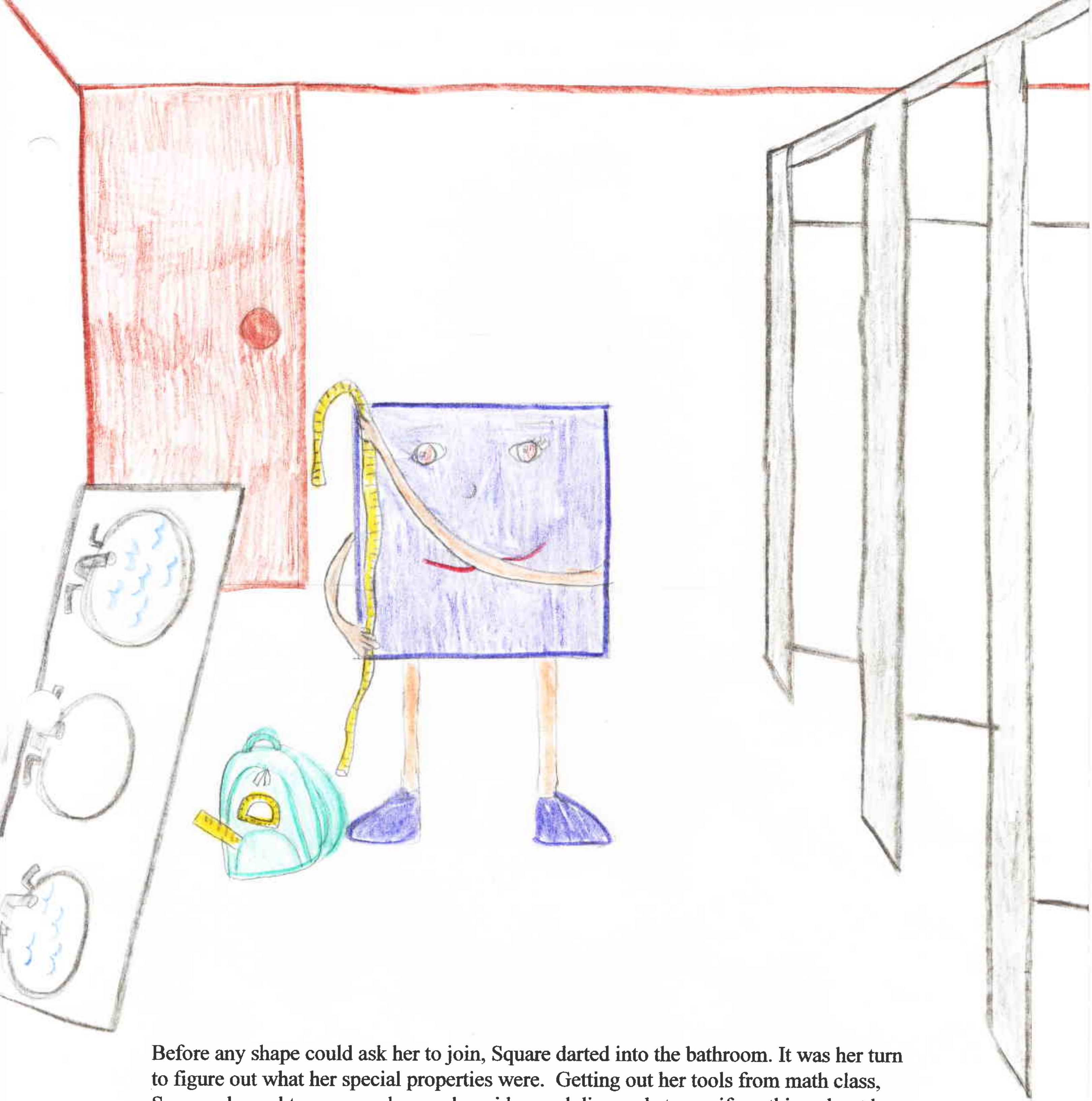
"How can you possibly have a design worth bragging about on your body?" asked Square.

"You are definitely in for a treat. You see, these diagonals form 4 right triangles that are congruent; all having 3 sides the same length and all 3 angles the same measure."

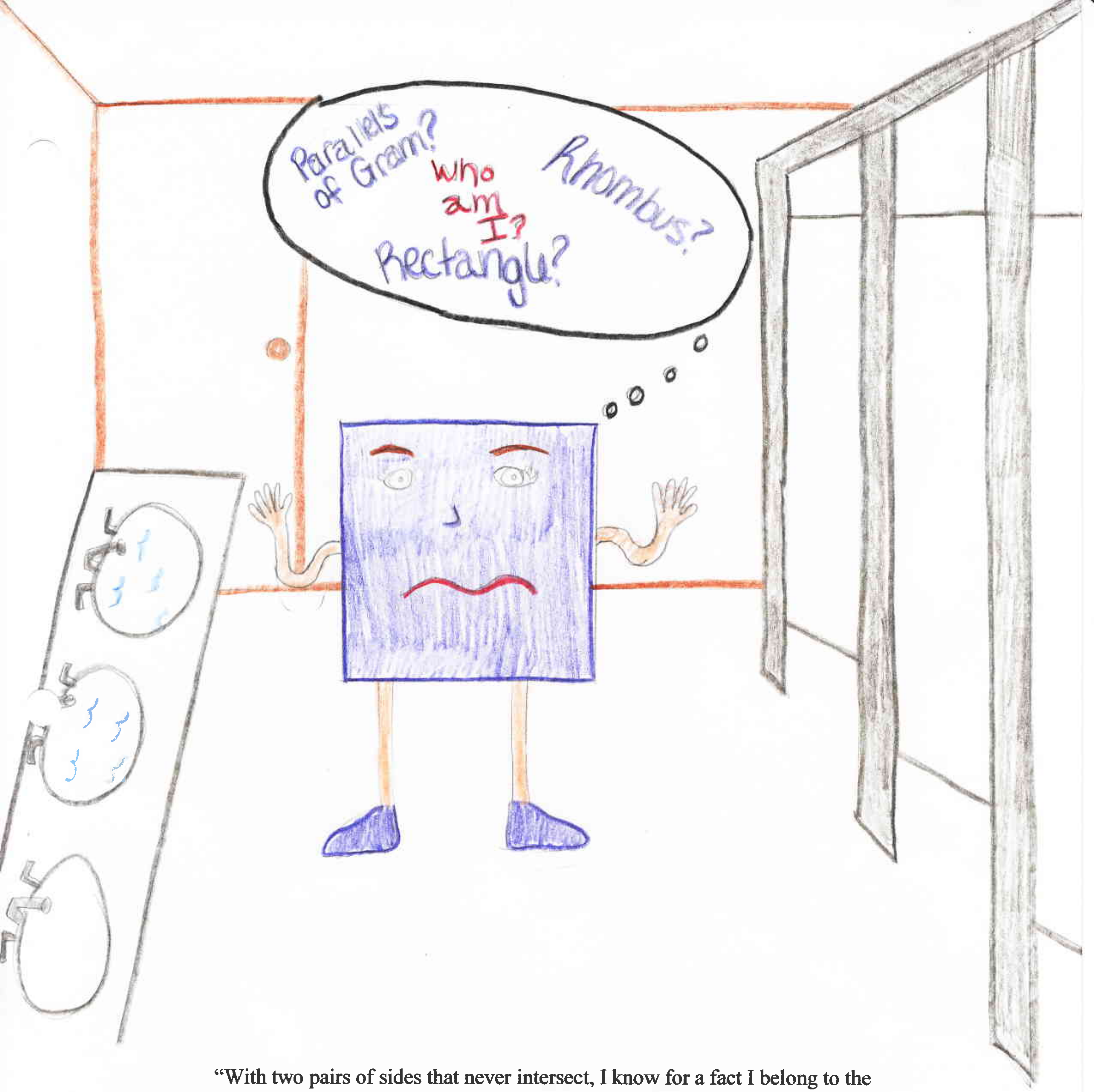


“Enough! Enough!” demanded Dangle who rarely ever got tired of hearing his friend boast. “Let me familiarize you with me, a Rectangle.”
Square no longer knew what to think. So much information had been shoved in her head that it would soon explode! She quickly glanced around the lunchroom glad to see that the rectangles were the last family in line to introduce their ‘wonderful’ shape. In the back of her mind a thought was beginning to form as to what shape she was.”

“Dangle is my name, and angles are my game,” announced Dangle, “Just as Diana has congruent sides, I have congruent angles. Not only are these angles congruent, but they are also 90 degrees in measure making them all right angles. I am officially described as a parallelogram with one right angle. Not as special as Diana, but still better than those Parallels of Gram, my diagonals are congruent. They have the same length! My figure is basically every shape’s dream come true. If I only had four congruent sides, my body would truly be perfect!”

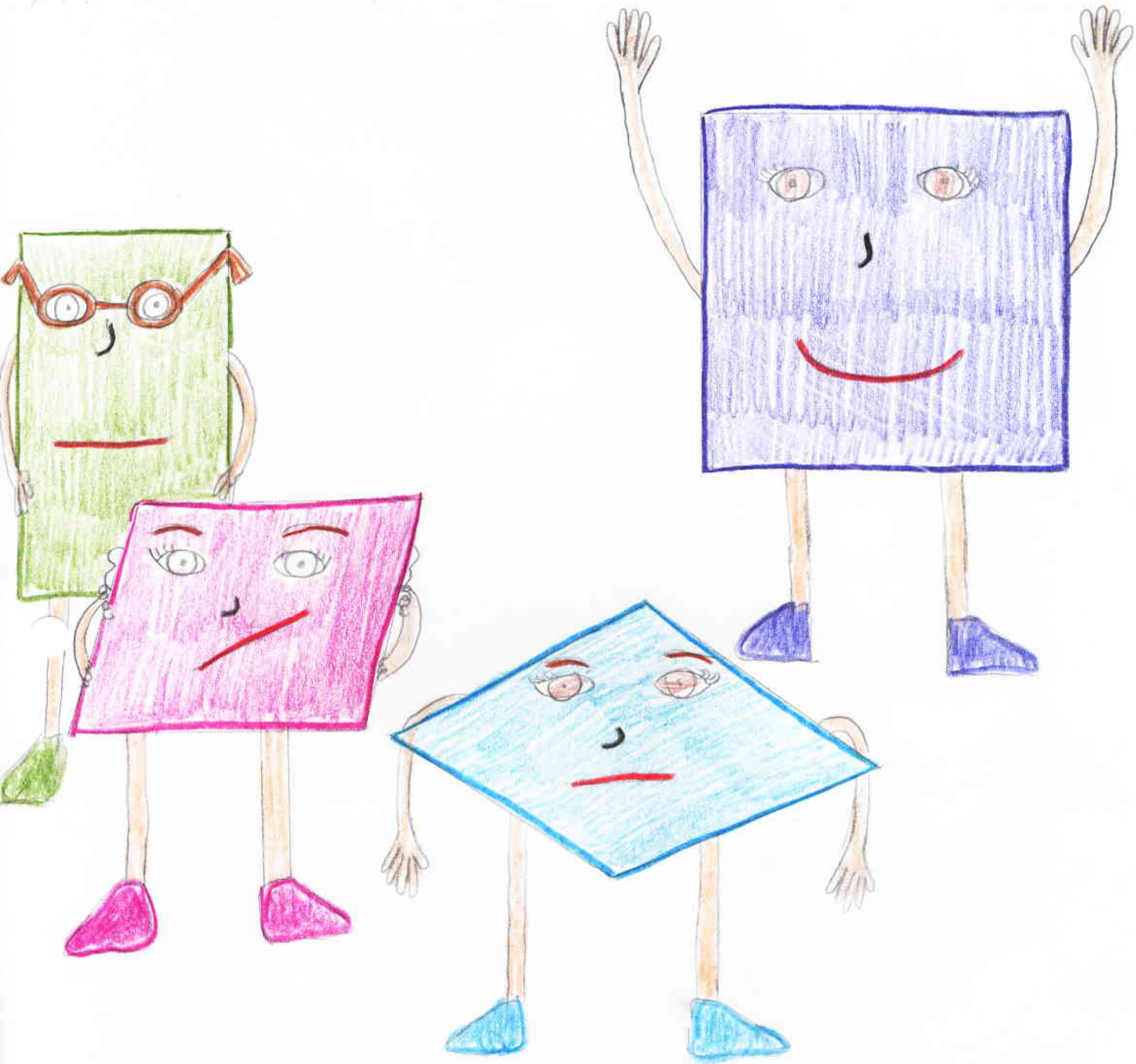


Before any shape could ask her to join, Square darted into the bathroom. It was her turn to figure out what her special properties were. Getting out her tools from math class, Square planned to measure her angles, sides, and diagonals to see if anything about her was special. By looking in the mirror, Square sensed her wouldn't every intersect making them parallel. With her protractor, she measured her angles, to find that each had a measure of 90 degrees! She then measured her sides and found that each side had the same measure! Not even worrying about the diagonals, Square thought back on the definition of both the Rectangle and the Rhombus, who were both technically members of the Parallelograms also.



"With two pairs of sides that never intersect, I know for a fact I belong to the Parallels of Gram. If a Rhombus needs at least two consecutive sides congruent and I have four, I must belong to this family too. But on the other hand, if a Rectangle needs one right angle and I have four, I must belong to that family also." Nothing was more confusing than trying to figure out whose family she should join!

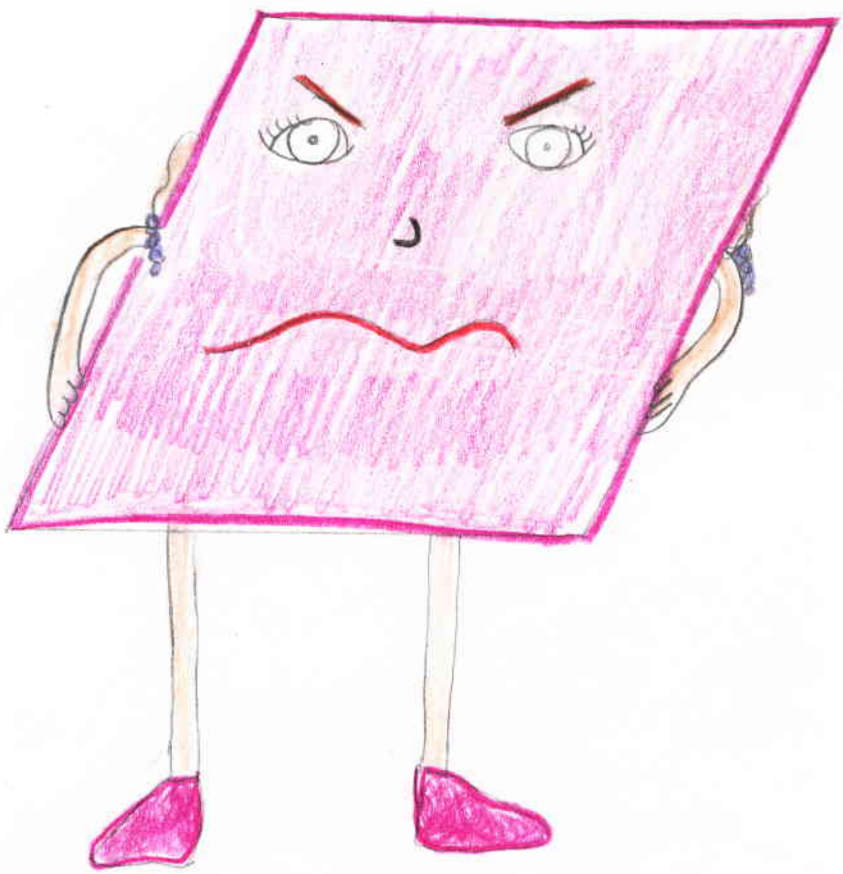
Square knew she had to decide before she was considered a reject of all the families of Parallel Gram School. With a decision made, Square rushed to the lunchroom with a rather confident look on her face.



"May I have your attention please," she announced, "It has come time for me, Miss Square Gram, to announce decision for the family to whom I wish to join."

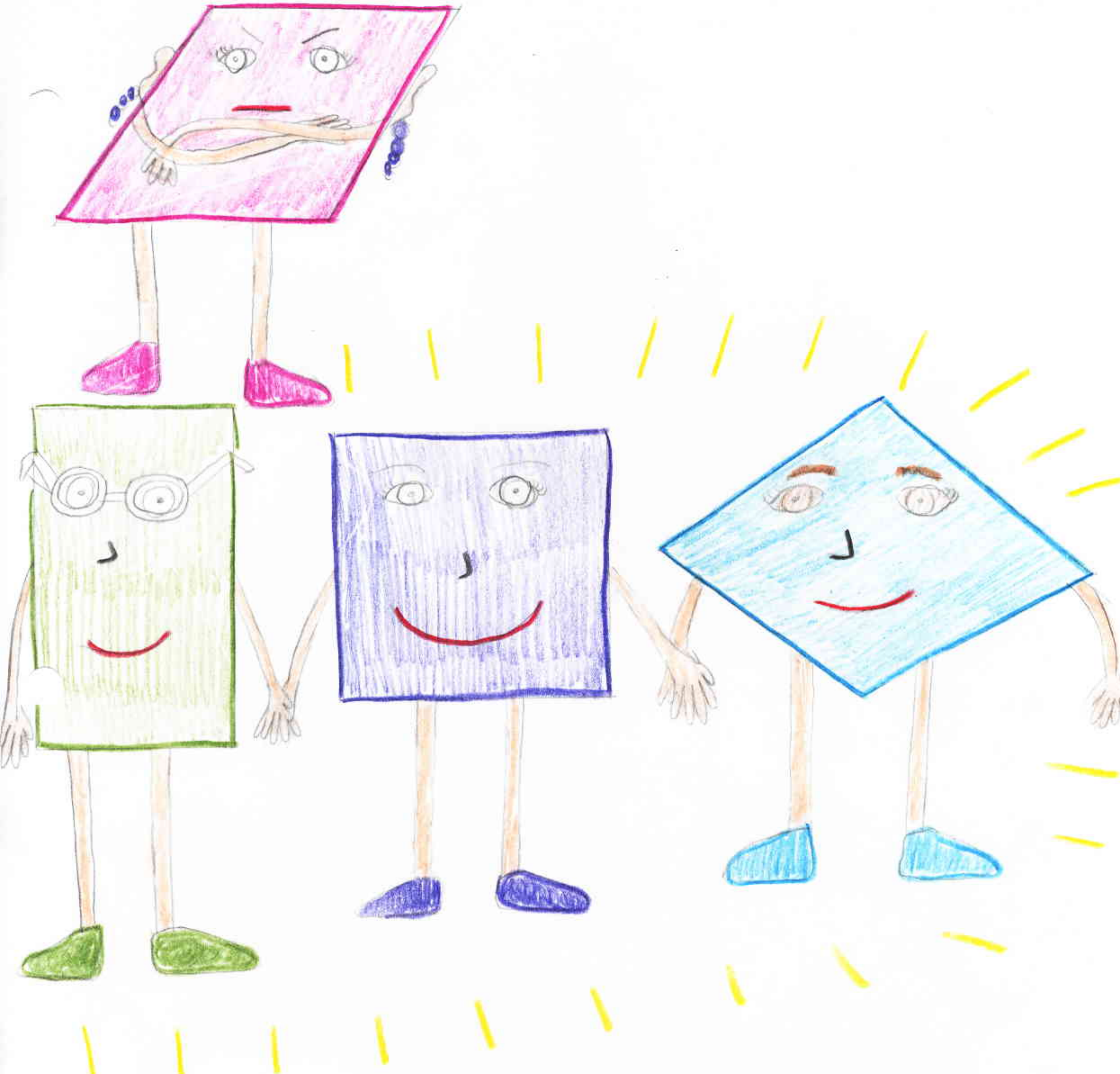
An odd feeling of suspense feeling of suspense filled the air. It seemed as if every group knew she belonged to them.

"I have decided to be everyone's friend!" Jaws dropped and eyes widened immediately after the words left her mouth.



Angered by the decision Diana demanded, "You can't do that. It's a social rule at Parallel Gram School that all Grams must belong to a family! This isn't fair!"

"I do belong to a family," explained Square, "I have two sets of Parallel sides which places me with the Parallels. I also am equiangular which allows me to be a Rectangle, and finally I am equilateral, which by definition gives me every right to be part of the Rhombuses!"



After the speech the whole school was amazed, except for jealous Diana. They couldn't believe that there could be a shape that belonged to every family. It was beyond their belief. It was PERFECT!

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