

D. School 76

Chapter 76 - Heart-shaped line

“What is it?”, Natalie opened the box curiously, and took out a silver bracelet with a little squirrel hanging from it, in addition to a string of mathematical symbols.

“Why is it a squirrel?”, She was a little inexplicable, holding the bracelet between her eyes, and asked Lu Qiu Jian to ask her gaze, “And what does this string of symbols mean?”

“This kind of thing is interesting only if you guess it yourself!”, Lu Qiu Jian shook his finger to signal that he would not directly tell her the answer, “But I can give you a hint, what do squirrels like to eat most?”

“Nut! (Nut, very similar to Natalie’s nickname Nat pronunciation)”, Natalie instantly reflected, “Oh, Lu! You bad guy!” Squirrel likes Nut, and her name is Nat, then The meaning of this bracelet is very clear.

“Bingo! You guessed it!”, Lu Qiu Jian snapped her fingers to celebrate, and looked down at Natalie’s eyes. From her eyes, Lu Qiu Jian saw a trace of shyness and a touch of tenderness, of course, even less. After being hit at the softest part of the heart, he felt excited; after a while, Lu Qiu Jian pointed at the string of symbols and said, “Continue to guess, what is this?”

“Well, it seems to be a mathematical formula? $R = a(1 - \sin\theta)$?”, Natalie said how to be a talented student at Harvard. Although he studied psychology, he was no stranger to mathematics, and soon he saw The origin of this string of symbols; but what exactly is this formula? Since the squirrel said that he likes Nat, then this formula also has a special meaning?

“Exactly!”, Lu Qiu Jian applauded, and asked the waiter to borrow pen and paper to pass to Natalie. “In addition to using the formula to express, the equation can also be used as a diagram to express. You can use this formula in the extreme Draw on the coordinates and see! “

Polar coordinates are the same as rectangular coordinates, they are introduced to represent the position of a point in space; rectangular coordinates use the distance and positional relationship between the point and each coordinate axis to determine the coordinates, while polar coordinates use angles The distance represents the point, and it is easier to use polar coordinates when dealing with certain problems. For example, in rectangular coordinates, the standard equation of the circle whose center is at the origin is $x^2 + y^2 = R^2$, where R is the radius ; And the same circle, the equation in polar coordinates can be written as $\rho = R$, thus greatly simplifying the equation.

The mathematics knowledge is not difficult for Natalie. She soon picked up the pen to draw a coordinate system on the paper, and marked the numbers on the coordinate system to start drawing.

At the intersection of two straight lines, draw an arc that extends to the upper left. The arc crosses a small arc and goes down. After crossing the abscissa line, it continues to expand outward. When it reaches the limit, it gathers inward until it meets The vertical coordinate line is connected; then on the right also draw an arc that extends to the upper right first, and then cross the horizontal coordinate line and continue to expand outward, reach the limit and gather inward until the arc line and the vertical coordinate line just now Are connected.

“Wow!”, A beautiful heart appeared on the coordinate system, Natalie exclaimed sincerely, “This equation is really beautiful! Romantic beyond imagination!”

“There is also a romantic story in it!”, Lu Qiuqian began to speak in a low voice, “In 1649, on the streets of Stockholm, 52-year-old Descartes met 18-year-old Swedish princess Christine. A few days later, he was unexpectedly notified that the king hired him as a little princess’s math teacher. He followed the bodyguards who came to the notice to the palace, and he saw the girls who met on the street. Since then, he has become a little princess Math teacher. “

“Later?”, Natalie asked like an ordinary girl at this time.

Sure enough, every girl had a princess dream, even Natalie could not avoid it, Lv Qiuqian went on to preach, “The little princess’ mathematics is advancing rapidly under Descartes’s careful guidance. In the heart, the princess’s father, the king, became furious when he knew it, and ordered Descartes to be executed. After the princess Christine pleaded, the king exiled him back to France.

“Descartes became seriously ill shortly after returning to France. He wrote to the princess every day. Because the king intercepted him, Christine never received Descartes’ letter. Descartes sent the thirteenth letter to Christine. Then he died in anger. This thirteenth letter contained only a short formula: $r = a(1 - \sin\theta)$. The king did not understand it, and felt that the two of them did not always say love, and they would all The mathematician in the city summoned to the palace, but no one could solve it. He could n’t bear to watch his beloved daughter sullen all day, so he gave the letter to Christine who had been sullen. ”, Said Natalie’s He smiled in the corner of his eyes and looked down at the figure he had just drawn.

“Yes, just like you, she immediately draws the figure of the equation. She is very happy to see the figure. She knows that her lovers still love her. The original figure of the equation is the shape of a heart. This is the origin of the heart-shaped line. “,” Lu Qiuqian pointed at the picture.

Of course, this story full of intellectual body can't be scrutinized at all. First of all, Christine was 24 years old instead of 18 years old in 1649; secondly, her father was the famous Gustav II. Unfortunately, he was killed in the battle. By this time, it is estimated that even the bones in the grave are rotten. How can there be a chance to execute Descartes; and when Lu Qiujian first read this article, the original text wrote that Christine was on the direct coordinate system. Draw this pattern $r = a(1 - \sin\theta)$ is clearly the polar coordinate equation, and the equation of the heart-shaped line in the rectangular coordinate system should be $x^2 + y^2 + a * x = a * \sqrt{x^2 + y^2}$ and $x^2 + y^2 - a * x = a * \sqrt{x^2 + y^2}$.

Other loopholes are more, but as a man with normal EQ, Lu Qiujian knows that the romantic feeling is the most important thing for women. As for the truth and logic of the facts, if they are not in line with romance, then go Die!

Therefore, if you hear that woman tells you a romantic story with a heart-shaped line, do n't try to point out the loopholes in this story, otherwise you can only wait for you.

Of course, if your math skills are over, you can also draw $r = a \cos(\sin\theta)$ on polar coordinates; $x = a * (2 * \cos(t) - \cos(2 * t))$ on the parameter coordinates, $y = a * (2 * \sin(t) - \sin(2 * t))$, these can make heart-shaped lines. So an image of a romantic schoolmaster who appears to be romantic will appear in front of the girl. You will reap the achievements of worship +5, goodwill +10, and make another key step on the road to overthrow.

"I think my talent in mathematics may not be as good as Descartes, but I will definitely be happier than him, right?" Lu Qiujian looked at Natalie gently, holding her gently. Jade hand.

The equation of the heart-shaped line is actually much more than the types mentioned in this chapter. Friends who are interested can study it and take it to the girl