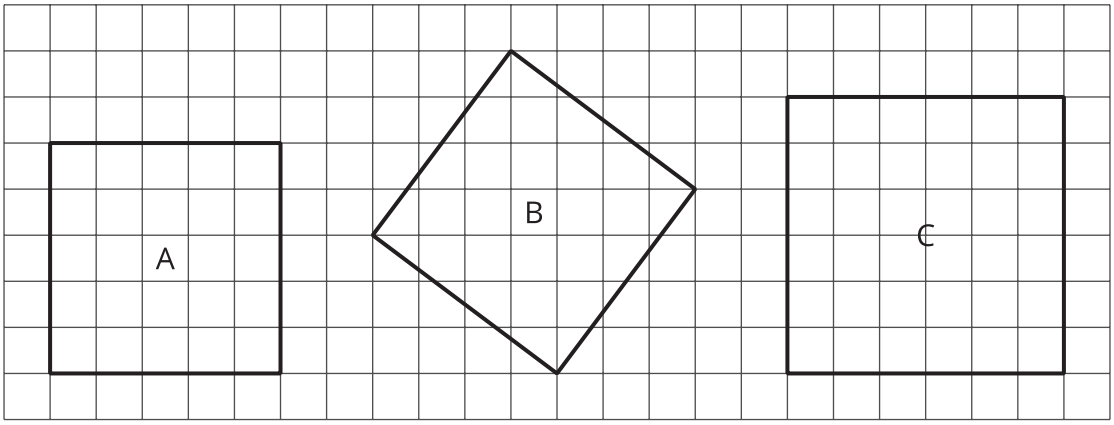
Side Lengths and Areas

Let's investigate some more squares.

2.1 Estimating Side Lengths from Areas (Part 1)



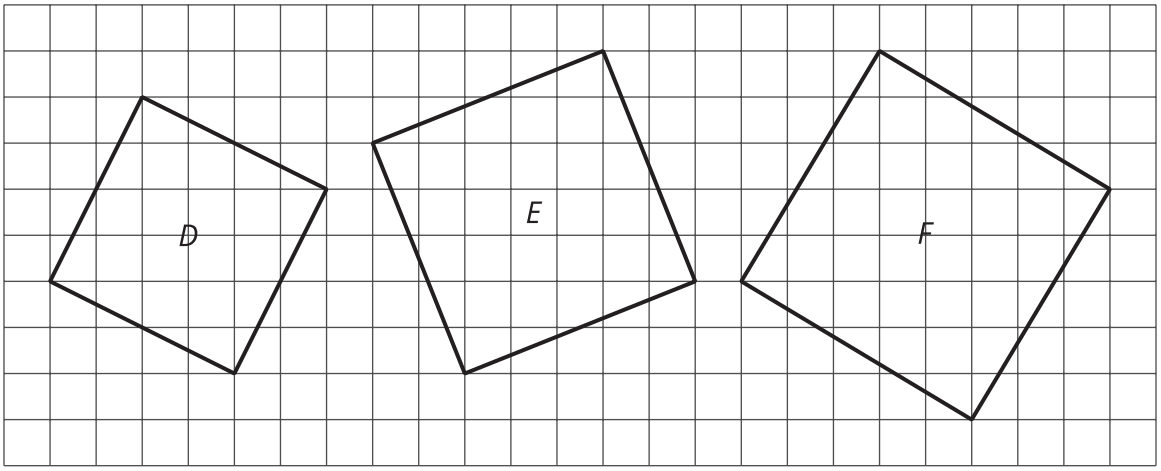
1. What is the side length of Square A? What is its area?

2. What is the side length of Square C? What is its area?

3. What is the area of Square B? What is its side length? (Use tracing paper to check your answer to this.)

2.2 Estimating Side Lengths from Areas (Part 2)

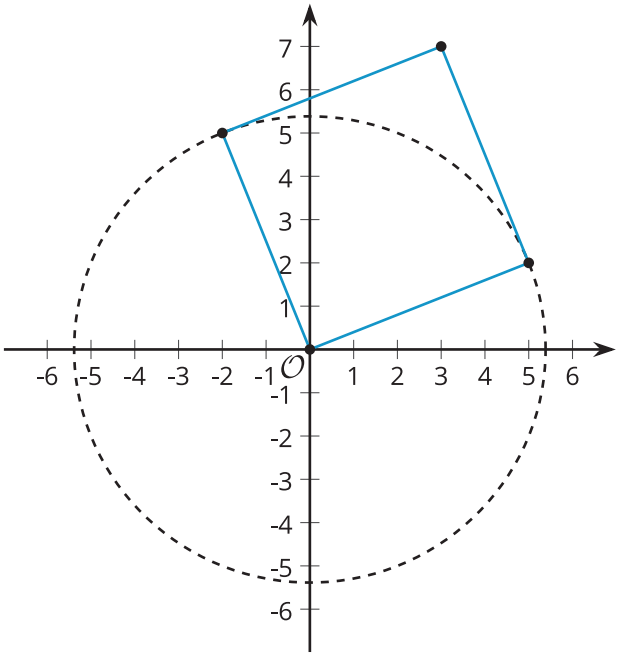
1. Find the areas of Squares D, E, and F.



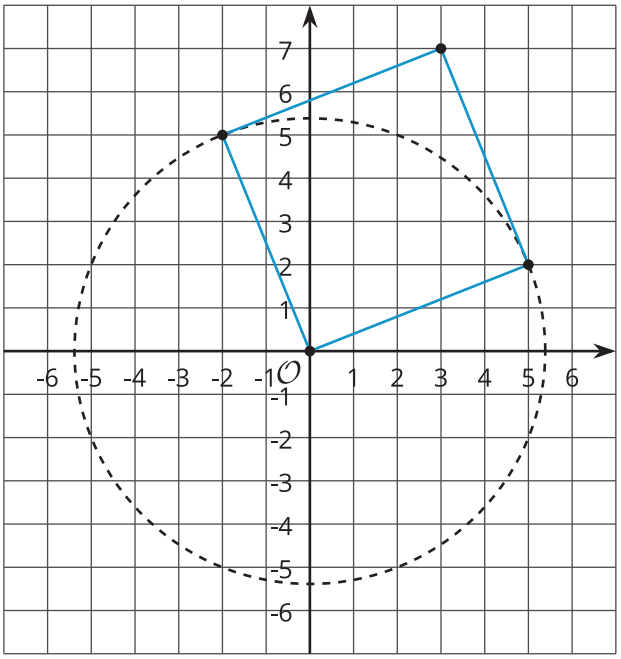
2. Which of these squares must have a side length that is greater than 5 but less than 6? Explain how you know.

2.3 One Square

1. Use the circle to estimate the area of the square shown here. Explain your reasoning.

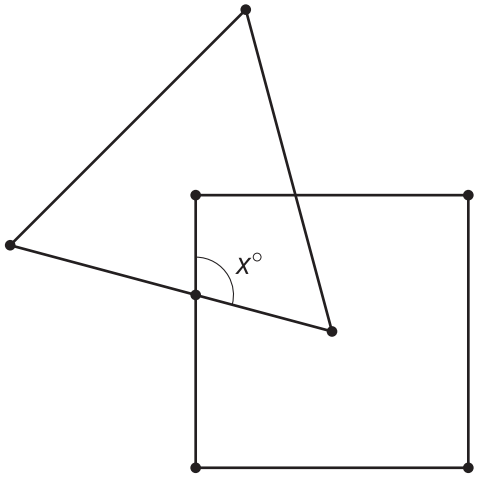


2. Use the grid to check your answer to the first problem.



Are you ready for more?

One vertex of the equilateral triangle is in the center of the square, and one vertex of the square is in the center of the equilateral triangle. What is x?



Lesson 2 Summary

The area of square $ABCD$ is 73 units^2.

Since the area is between $8^2 = 64$ and $9^2 = 81$, the side length must be between 8 units and 9 units. We can use tracing paper to trace a side length and compare it to the grid, which also shows the side length is between 8 units and 9 units.

When we want to talk about the exact side length, we can use the square root symbol. We say "the **square root** of 73," which is written as $\sqrt{73}$ and means "the side length of a square with area 73 square units." It is also true that $\left(\sqrt{73}\right)^2 = 73$.