

## LOOKING FOR SQUARES

The smallest square you can draw by connecting the dots on a 5-dot-by-dot grid is a unit square, which has an area of 1 square unit.



1 unit square

In this problem, you will explore the other areas that are possible for squares drawn on a 5-by-5 grid.

1. On the 5-dot-by-5-dot grids draw squares of various sizes by connecting dots. Try to draw squares with as many different areas as possible. Label each square with its area.
  
2. The area of a square is the length of a side multiplied by itself. This can be expressed by the formula  $A = s \times s$ , or  $A = s^2$ . If you know the area of a square, you can work backward to find the length of a side. For example, suppose a square has an area of 9 square units. To find the length of a side, you need to figure out what positive number multiplied by itself equals 9. Since  $3 \times 3 = 9$ , the side length is 3 units. We call 3 a **square root** of 9. The symbol for the positive square root is  $\sqrt{\quad}$ . We write  $\sqrt{9} = 3$ 
  - a. Some of the squares were upright and others were tilted. It is likely that you found one upright square with area 16 square units. Find its side length. Explain your thinking.
  - b. It is likely that you found a tilted square with area 8 square units. Find the side length of this square. Explain your thinking.

