4A.6 **Learning Opportunity** Name: _____

Perfect Squares and Square Roots

1) Draw one model to represent both of these equations: $6^2 = 36$ and $\sqrt{36} = 6$

Find each square:

2) 29^2

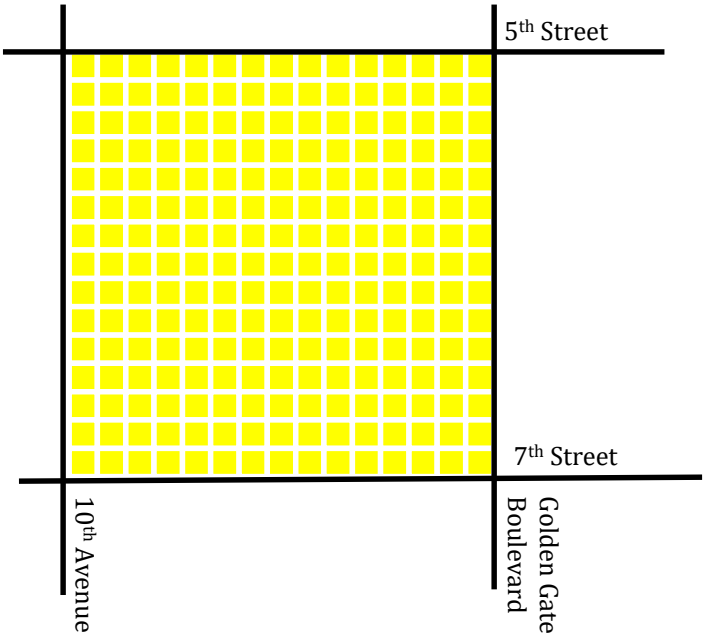
3) $(0.08)^2$

4) $\left(-\frac{2}{7}\right)^2$

5) $\left(\sqrt{7}\right)^2$

6) The floor of Spencer's patio is the shape of a square. To tile the patio floor, Spencer determined he needed 225 square tiles that each measure one foot on a side. What are the dimensions of the patio floor?

7) The model below represents a city block in Daniel's neighborhood. Each day, Daniel exercises by jogging around the block several times. In the model, each small yellow square represents an area of 400 square feet. How many feet will Daniel have jogged after one complete lap around the block?



8) Police officers can measure the skid marks of a car to estimate the speed. The formula $s = \sqrt{24d}$ is used to determine the speed of a car on a dry concrete road. The speed in miles/hour is represented by s, and d is the distance in feet that the car skidded after the brakes were applied. What was the speed of a car that left skid marks 150 feet long?

Find each square root:

9) $\sqrt{256}$

10) $\sqrt{\frac{16}{121}}$

11) $\sqrt{0.81}$

12) $\sqrt{10,000}$

13) The area of a circle can be found by multiplying π times the square of the radius. Find the radius of a circle with an area of 36π.

Estimate each square root below to the nearest tenth.

14) $\sqrt{15}$

15) $\sqrt{44}$

16) $\sqrt{140}$