PERFECT SQUARES AND SQUARE ROOTS

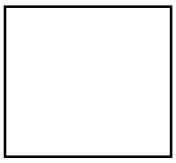
What exactly is a square?

So what makes it so "perfect?"

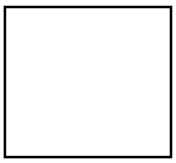
Pretend you have small square tiles with sides measuring 1 unit. Using the squares below, create a sketch with the correct number of tiles filling each square.

4 Tiles

9 Tiles



16 Tiles



Did you make "perfect" squares?

What are factors?

Write the factors of:

4 = _____ 9 = _____ 16 = _____

Since each number above has two of the same factors, we can use exponents to be more efficient:

4 = _____ 9 = _____ 16 = _____

Complete the factor table below and say whether each number can be considered a perfect square?

Number	Factors (Find 2 factors that are the same if you can)	Perfect Square? Y or N and Why?
25		
10		
30		
49		

List of Perfect Squares:

1^2 = _____ = _____ 9^2 = _____ = _____

2^2 = _____ = _____ 10^2 = _____ = _____

3^2 = _____ = _____ 11^2 = _____ = _____

4^2 = _____ = _____ 12^2 = _____ = _____

5^2 = _____ = _____ 13^2 = _____ = _____

6^2 = _____ = _____ 14^2 = _____ = _____

7^2 = _____ = _____ 15^2 = _____ = _____

8^2 = _____ = _____ 16^2 = _____ = _____

25 is a _____ because _____

_____

Then, what is a Square Root?

Square **Root**:

$\sqrt{25} = 5\ and - 5$ because:

Are these perfect squares? Why or why not? How can you tell?

Challenge!

1) Residents who live in the city receive power from the city's power plant. If the city is a square, *approximately* how wide is the city if its area is 200 square miles?

A. 10 miles B. 14 miles C. 18 miles D. 20 miles

2) What is the value of the expression $-14x^2 - 2xy$ if $x = -3$ and $y = -7$?

A. -78 B. -6 C. 6 D. 78

3) The area of a square is 36 cm^2. Which represents the side length of the square?

A. 18 cm B. 12 cm C. 9 cm D. 6 cm

4) The area of a square field is 625 square meters. What is the perimeter of the field?

A. 312.5 m B. 156.5 m C. 100 m D. 25 m