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Class/Block: _____ Date: _____

Pythagorean Theorem

Introduction

In this exploration you will explore the Pythagorean Theorem and its uses.

Part I – Background Knowledge

Rewrite each expression using exponents. Have your teacher check your answers before you move on.

1) $3 \cdot 3$

2) $8 \cdot 8$

3) $x \cdot x$

4) $c \cdot c$

Part II – Squares and Square Roots

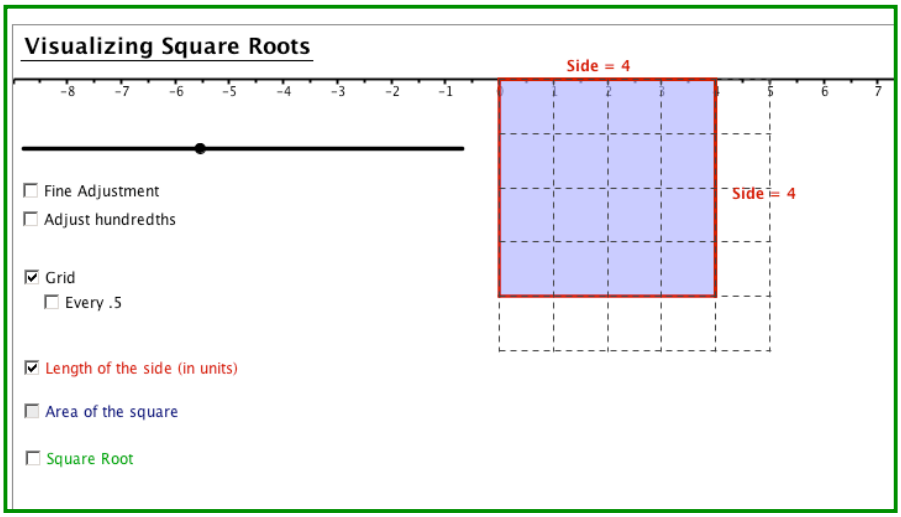
Step 1: Launch the Visualizing Square Roots applet using Firefox.

*a) Check the **Length of the Side** checkbox*

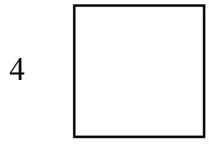
b) Move the sliders to set up the side of the square

*c) Check the **Grid** checkbox then*

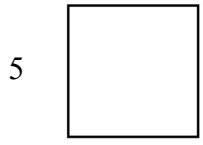
*d) Check the **Area of the Square** checkbox then record the area of the square*



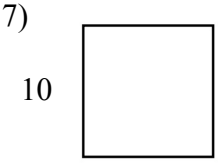
5)



6)



7)



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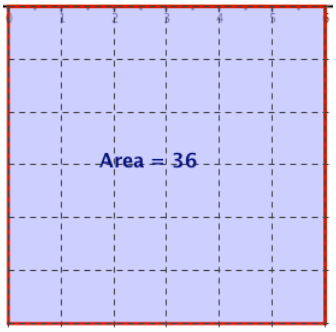
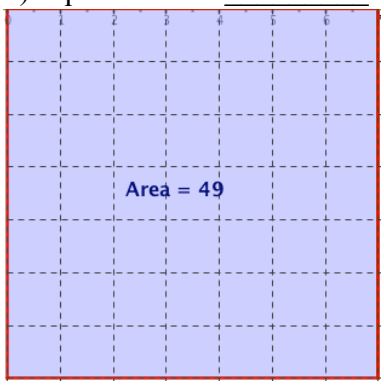
The ***Square Root*** of a square is the length of the side of the square.

What is the ***square root*** of each of the following squares?

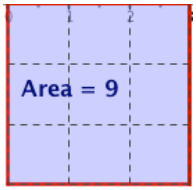
8) Square root is:_____



9) Square root is:_____



10) Square root is:_____



Use the applet to check your answer.

Estimate the square root of the following numbers. Use the ***Visualizing Square Roots*** applet to help estimate the square root.

11) Square root of 64 is:_____

12) Square root of 25 is:_____

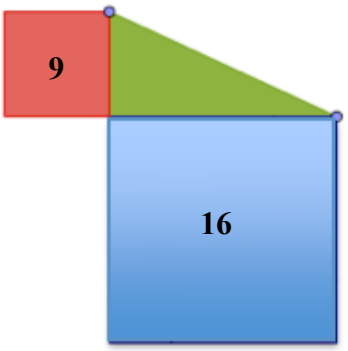
13) Square root of 20.25 is:_____

14) Square root of 6.25 is:_____

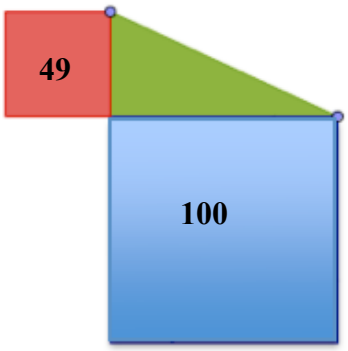
Part III.

Look at the picture below. Find the square root of each of the squares attached to the triangle below. Label the lengths of the sides of the squares:

15) The square root of the small red square is:_____
The square root of the big blue square is:_____



16) The square root of the small square is:_____
The square root of the big square is:_____



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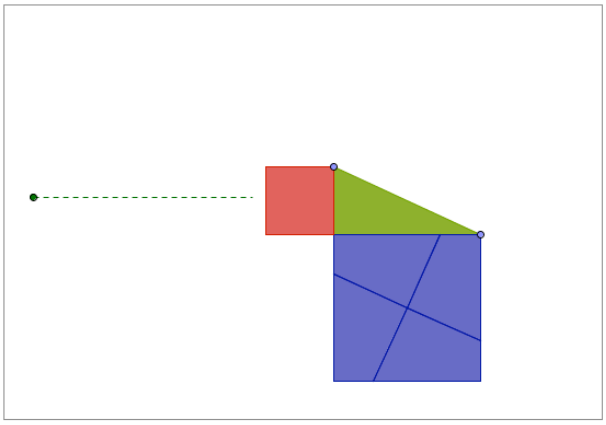
Part IV.

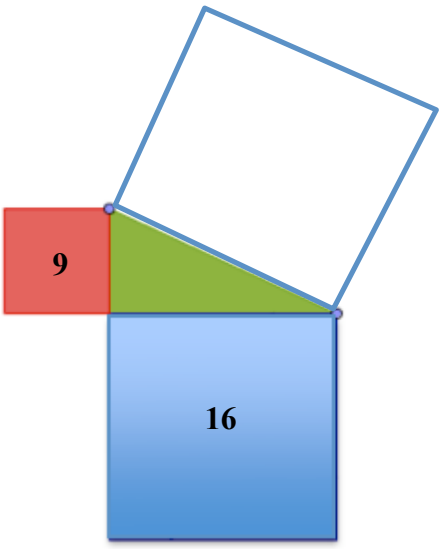
1) Launch the applet below:
http://www.geogebra.org/en/upload/files/english/taeil_yi/Pythagoras_1.html

Pythagoras 1



Move the slider to the right. Explain what happens to the blue and red square.

2) If the area of the red small square is 9 and the medium sized blue square is 16, what is the area of the big white square? How do you know?



3) What are the lengths of the three sides of the triangle? (Label each side)