Warm Up 3/31

Solve for b and graph your solutions on a number line.

$3(6b-1) > 18-3b$

$18b - 3 > 18 - 3b$

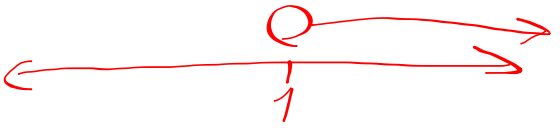
$+3b \qquad +3b$

$21b - 3 > 18$

$+3 \quad +3$

$\frac{21b}{21} > \frac{21}{21}$

$b > 1$



How to check?

$3(6b-1) > 18-3b$

Boundary # is it 1?

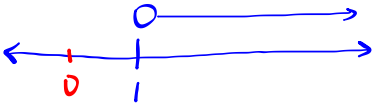
$3(6(1)-1) \stackrel{?}{=} 18-3(1)$

$3(5) \stackrel{?}{=} 18-3$

$15 = 15$ ✓

Correct Boundary #

Is graph correct?



Let's check 0

$3(6(0)-1) \stackrel{?}{>} 18-3(0)$

$3(-1) \stackrel{?}{>} 18$

$-3 > 18$

False!

This tells me 0 is NOT a solution.

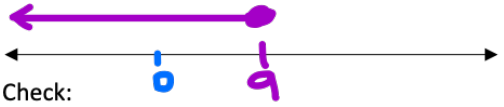
Name Key

Homework Questions?

Solving Inequalities

1. $7m + 9 \le 6(m + 3)$

$7m+9 \le 6m+18$
$-6m \quad -6m$
$m+9 \le 18$
$-9 \quad -9$
$m \le 9$

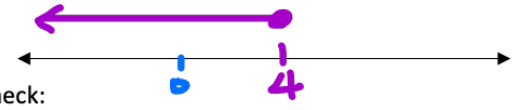


Check:
$7m+9 \le 6(m+3)$
$7(0)+9 \le 6(0+3)$
$9 \le 18$ True!

Zero is a solution ✓

2. $3(2x + 4) \ge 7x + 8$

$6x+12 \ge 7x+8$
$-7x \quad -7x$
$-x+12 \ge 8$
$-12 \quad -12$
$-x \ge -4$
$\frac{-x}{-1} \ge \frac{-4}{-1}$
$x \le 4$

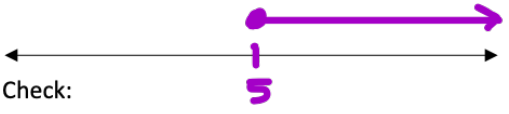


Check:
$3(2(0)+4) \ge 7(0)+8$
$12 \ge 8$
True

Zero is a solution ✓

3. $2(k + 4) \le 3(2k - 4)$

$2k+8 \le 6k-12$
$-6k \quad -6k$
$-4k+8 \le -12$
$-8 \quad -8$
$-4k \le -20$
$\frac{-4k}{-4} \le \frac{-20}{-4}$
$k \ge 5$

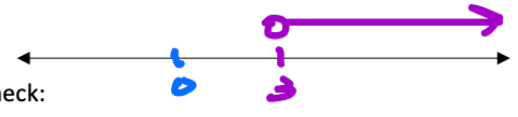


Check:
$2(0+4) \le 3(2(0)-4)$
$8 \le -12$
False

Zero is NOT a solution ✓

4. $5x + (-3) > 2(3 + x)$

$5x-3 > 6+2x$
$-2x \quad -2x$
$3x-3 > 6$
$+3 \quad +3$
$\frac{3x}{3} > \frac{9}{3}$
$x > 3$



Check:
$5(0)-3 > 2(3+0)$
$-3 > 6$
False

Zero is NOT a solution ✓

5. $5c + 2 < 2c + (-7)$

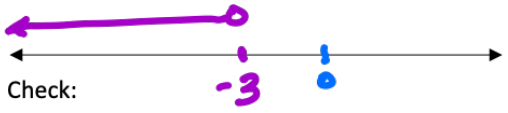
$-2c \quad -2c$

$3c + 2 < -7$

$-2 \quad -2$

$\frac{3c}{3} < \frac{-9}{3}$

$c < -3$



$3(0) + 2 < 2(0) - 7$

$2 < -7$

False

Zero is NOT a solution ✓

6. $5x - 20 > 2x + 1$

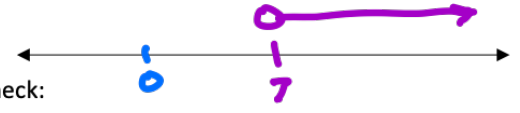
$+20 \quad +20$

$5x > 2x + 21$

$-2x \quad -2x$

$\frac{3x}{3} > \frac{21}{3}$

$x > 7$



$5(0) - 20 > 2(0) + 1$

$-20 > 1$

False

Zero is NOT a solution ✓

7. $3(s - 4) \geq 4s - 12$

$3s - 12 \geq 4s - 12$

$-4s \quad -4s$

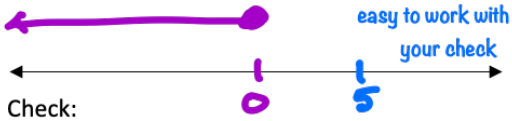
$-s - 12 \geq -12$

$+12 \quad +12$

$(-1) \; -s \geq 0 \; (-1)$

$s \leq 0$

Since 0 is our boundary we cannot use it to test if our arrow is graphed correctly. Choose another number that is easy to work with for your check



$3(5 - 4) \geq 4(5) - 12$

$3(1) \geq 20 - 12$

$3 \geq 8$

False

5 is NOT a solution ✓

8. $-9 - e > 3e + 11$

$+9 \quad +9$

$-e > 3e + 20$

$-3e \quad -3e$

$\frac{-4e}{-4} > \frac{20}{-4}$

$e < -5$

$-9 - (0) > 3(0) + 11$

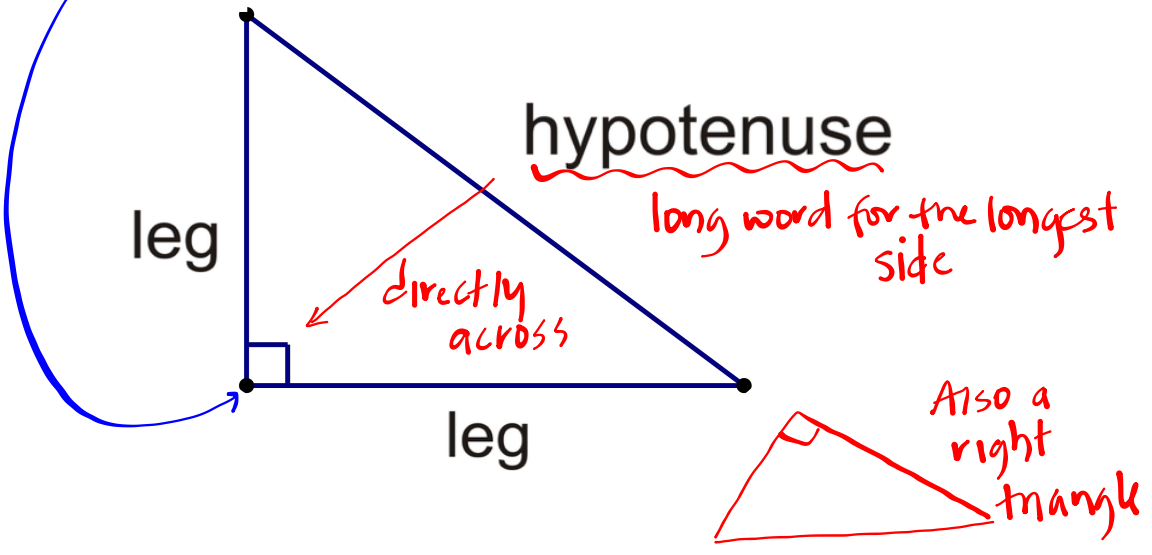
$-9 > 11$

False

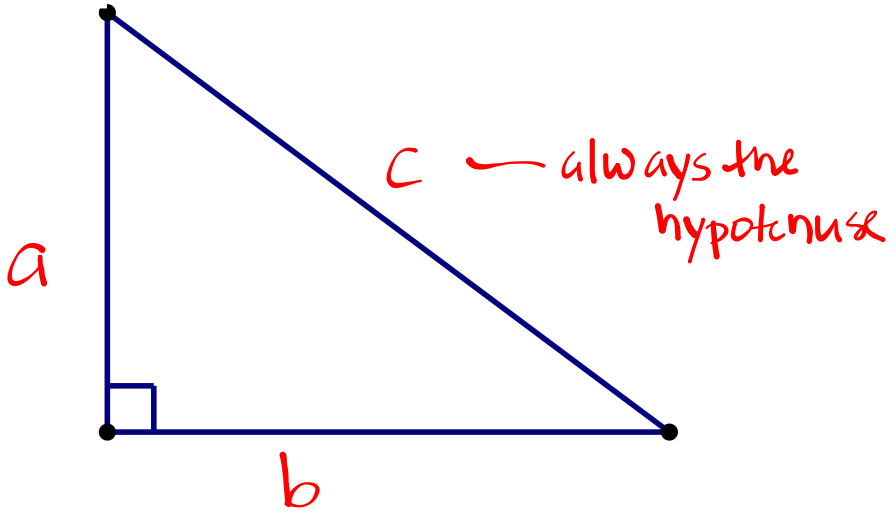
Zero is NOT a solution ✓

Right Triangle

(some basic vocab)

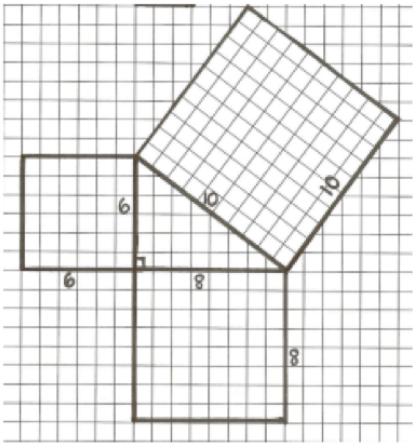


How are right triangles labeled?



a and b are the legs,
it doesn't matter what the order is

Use the diagrams to answer the following questions.



What are the lengths of the legs of the right triangle?

6 and 8

What is the length of the hypotenuse?

10

What are the areas of the squares off of the legs?

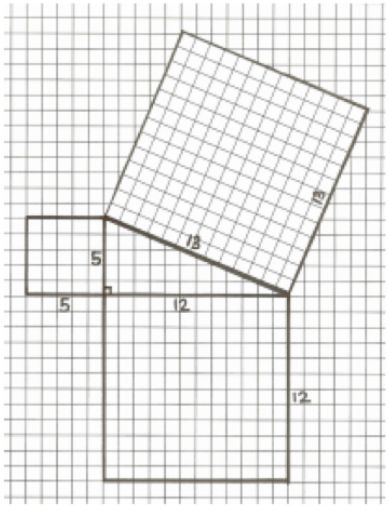
36 and 64

What is the sum of those two areas?

100

What is the area of the square off of the hypotenuse?

100



What are the lengths of the legs of the right triangle?

5 and 12

What is the length of the hypotenuse?

13

What are the areas of the squares off of the legs?

25 and 144

What is the sum of those two areas?

169

What is the area of the square off of the hypotenuse?

169

Explain the relationship between the sum of the areas off of the legs and area off of the hypotenuse?

Sum of areas off the legs is equal to the area off the hypotenuse

Do you think all right triangles will have lengths that are integers? Explain. _____

How to get a square root:

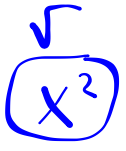
$\sqrt{}$

radical sign

$\sqrt{4} = 2$

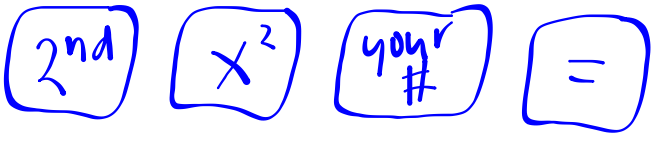
"What is square root of 4"

~~$\sqrt{x}$~~



On the calculators in the classroom, the radical sign is above the x^2 button. You need to press the 2nd button to access it.

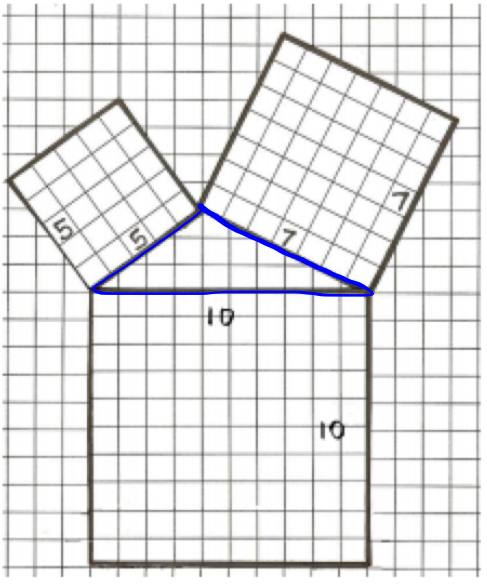
To find the square root of a number:



$\sqrt{64} = 8$ $\sqrt{144} = 12$ $\sqrt{625} = 25$

$\sqrt{289} = 17$ $\sqrt{342.25} = 18.5$

$\sqrt{795.24} = 28.2$ $\sqrt{19600} = 140$



What are the lengths of the shorter sides of the triangle? 5 and 7

What is the length of the longest side? 10

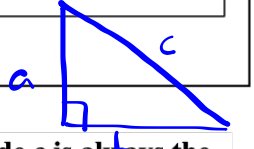
What are the areas of the squares off of the two shorter sides? 25 and 49

What is the sum of those two areas? 74

What is the area of the square off of the longest side? 100

If there is no relationship, why do you think that is? _____

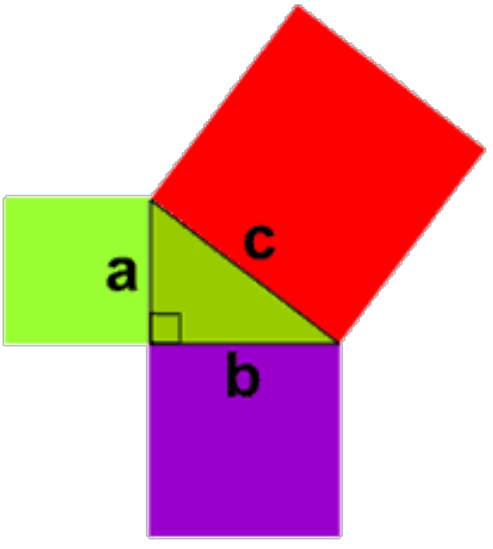
_____



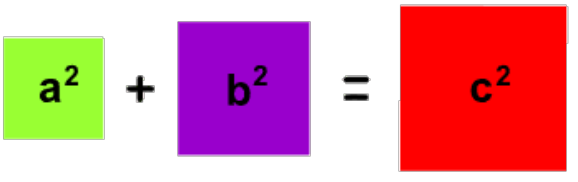
The data below was taken from five right triangles with sides a, b, and c. (Side c is always the longest side.) The area of the square off each side is denoted with a capital letter. Using what you have discovered, complete the table below.

a	Area of *A*	*b*	Area of B	Area of C	*c*
6	36	8	64	100	10
5	25	4	16	41	6.403
9	81	10	100	181	13.45
1	1	2	4	5	2.23
3	9	5.20	27	36	6

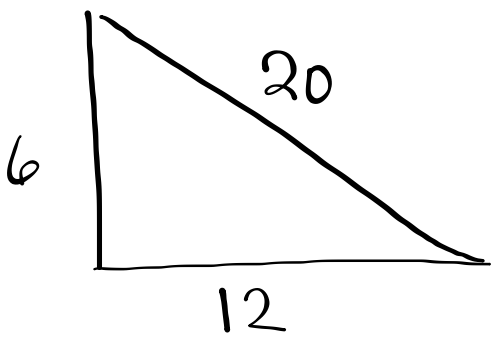
$$a^2 + b^2 = c^2$$



Pythagorean Theorem



Pythag Water Demo.mp4



Is this a right triangle?

$a^2 + b^2 = c^2$

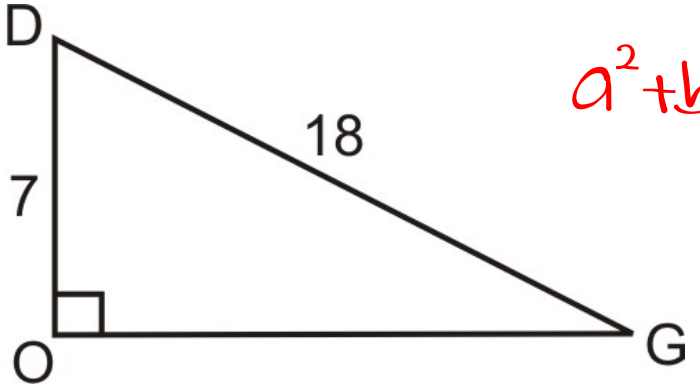
$6^2 + 12^2 \stackrel{?}{=} 20^2$

$36 + 144 \stackrel{?}{=} 400$

$180 \neq 400$

This is NOT a right triangle!

Δ DOG a right triangle



$a^2+b^2=c^2$

What is the length of OG?

Start with formula

$a^2+b^2=c^2$

$7^2+b^2=18^2$

$49+b^2=324$

$-49 \quad -49$

$\sqrt{b^2}=\sqrt{275}$

$b=16.58$

Homework

Finish classwork if not done.