Finding the Square Root between two Integers

Steps:
1) Find the perfect square before and after the given value.
2) Find each square root.

EX) 28 $\sqrt{25}$ $\sqrt{36}$ so $\sqrt{28}$ btw 5 & 6.

EX) 105 $\sqrt{100}$ $\sqrt{121}$ $\sqrt{105}$ btw 10 & 11

EX) 46.7 $\sqrt{36}$ $\sqrt{49}$ $\sqrt{46.7}$ btw 6 & 7

Find the Sum of the integers between the square roots

Steps:
1) Find the perfect square between each given value.
2) Find each square root.
3) Find the sum.

EX) 15 and 30

$\sqrt{16}$ $\sqrt{25}$

$4 + 5 = 9$

EX) 40 and 75

$\sqrt{49}$ $\sqrt{64}$

$7 + 8 = 15$

Finding Distance Using Distance Formula

Equation

$$D = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

(x_1, y_1) point 1 (x_2, y_2) point 2

Distance between 2 coordinates

Ex 1) Find the distance between the points (2,3) and (6, 8).

$D = \sqrt{(6-2)^2 + (8-3)^2}$

$\sqrt{4^2 + 5^2} = \sqrt{16+25} = \sqrt{41} \approx 6.4u$

Ex 2) (-3, 5) and (0, -8)

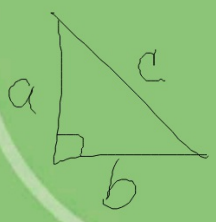
$D = \sqrt{(0-(-3))^2 + (-8-5)^2}$

$\sqrt{3^2 + (-13)^2} = \sqrt{9+169} = \sqrt{178} \approx$ 13.3u

Finding Distance Using Pythagorean Theorem

Distance of a line

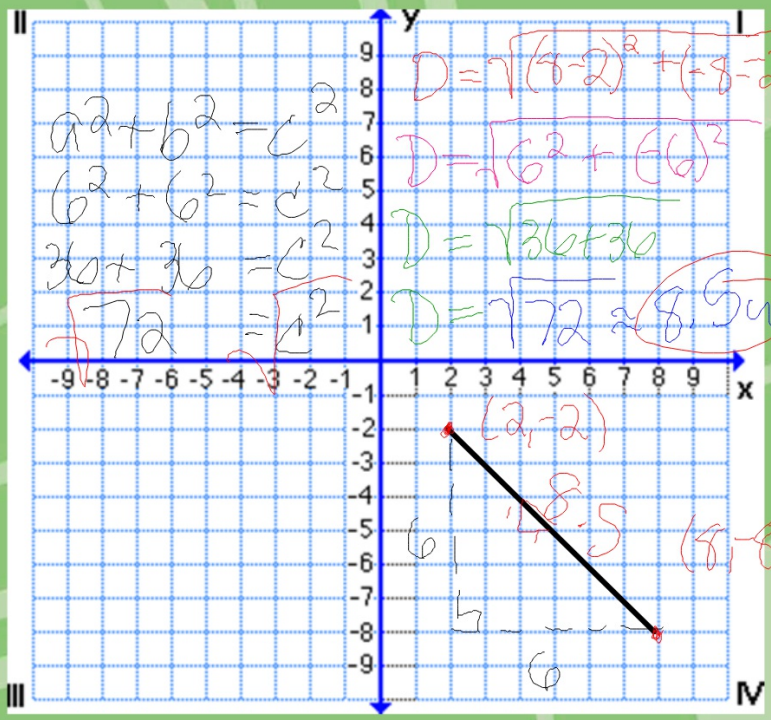
$a^2+b^2=c^2$



a & b are legs

c: hypotenuse

Ex 2) Find the length of the line segment shown below



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

$6^2+6^2=c^2$

$36+36=c^2$

$72=c^2$

$D=\sqrt{(6-2)^2+(-8-2)^2}$

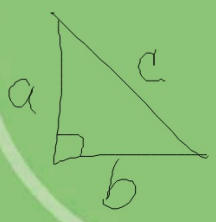
$D=\sqrt{6^2+(-6)^2}$

$D=\sqrt{36+36}$

$D=\sqrt{72}\approx 8.49$

Finding Distance Using Pythagorean Theorem

Distance with Shapes

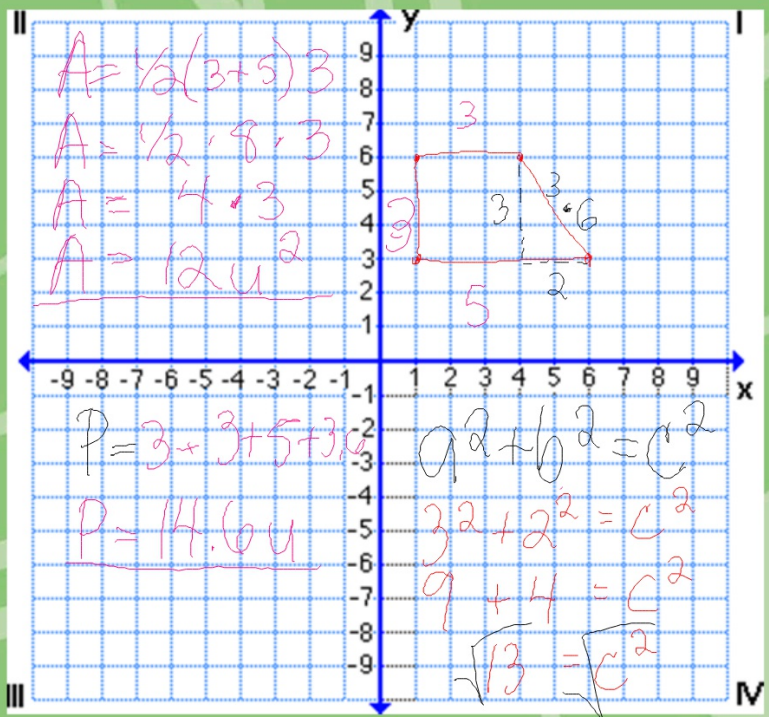


a & b are legs

c : hypotenuse

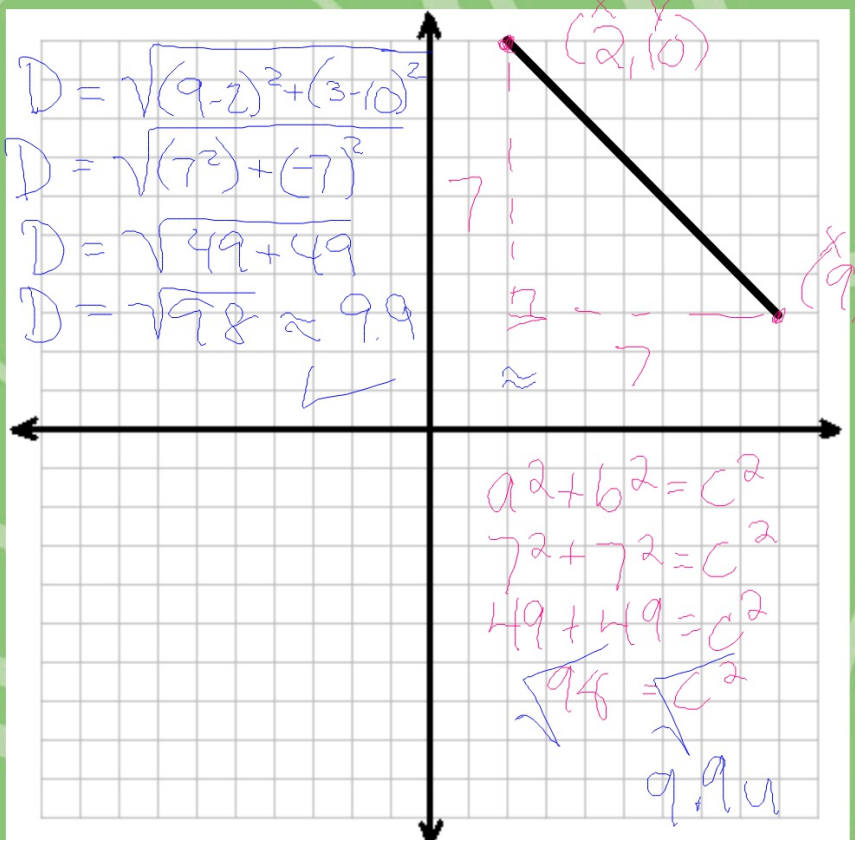
$A = 1/2(b_1 + b_2)h$

Ex 3) Find the perimeter and area of the shape that has the coordinates:
(1,3) (1, 6) (6, 3) (4, 6)



You Try

Find the length of the line segment



Warm Up

Complete the practice sheet on distance from yesterday.

Find the area and perimeter of each shape

1. (6,1), (0,9), (0,1)

2. (-4,2), (4,-2), (-4,-2)

3. (1,1), (4,1), (4,3)

4. (-1,-3), (-1,2), (-5,2)

5. (-1,1), (-5,1), (-5,5)

6. (2,0), (6,0), (4,-5) (6,-5)

7. (2,1), (-3,1), (-2,4) (1,4)

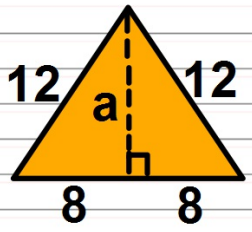
Graphing Activity

Find the diagonal side:

8. (-4,3), (4,3), (4,-4), (-4,-4)

9. (-5,5), (-5,1), (2,1), (2,5)

10. **Find the area:**



Finding Midpoint of a line

Formula

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right) = (x_m, y_m)$$

(avg of x, avg of y)

Midpoint Given 2 Points

Ex 1) Find the midpoint of (4, 6) and (10, 12)

$$\left(\frac{4+10}{2}, \frac{6+12}{2}\right) = (7, 9)$$

Ex 2) Find the midpoint of (-2, 3) and (10, -6)

$$\left(\frac{-2+10}{2}, \frac{3+-6}{2}\right) = \left(4, \frac{-3}{2}\right)$$

Finding Midpoint of a line

Finding Endpoints

$$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right) = (x_m, y_m)$$

Ex 1) Find the other end point of a line who has a midpoint of (-9,-10) and end point of (-1,-9)

$(-17, -11)$

$x \quad y$

$\frac{x+-1}{2}, \frac{y+-9}{2} = (-9,-10)$

$2\left(\frac{x+-1}{2} = -9\right) \quad \left(\frac{y+-9}{2} = -10\right)2$

$x + -1 = -18$

$+1 \quad +1$

$y + -9 = -20$

$+9 \quad +9$

Ex 2)

Endpoint: (2,5)

Midpoint: (5,1)

What is the other endpoint?

$X = 8$

$Y = -3$

$(8, -3)$

$$\left(\frac{X_1 + 2}{2}, \frac{Y_1 + 5}{2}\right) = (5, 1)$$

$$2\left(\frac{X+2}{2} = 5\right) \qquad 2\left(\frac{Y+5}{2} = 1\right)$$

$X + 2 = 10$

$-2 \quad -2$

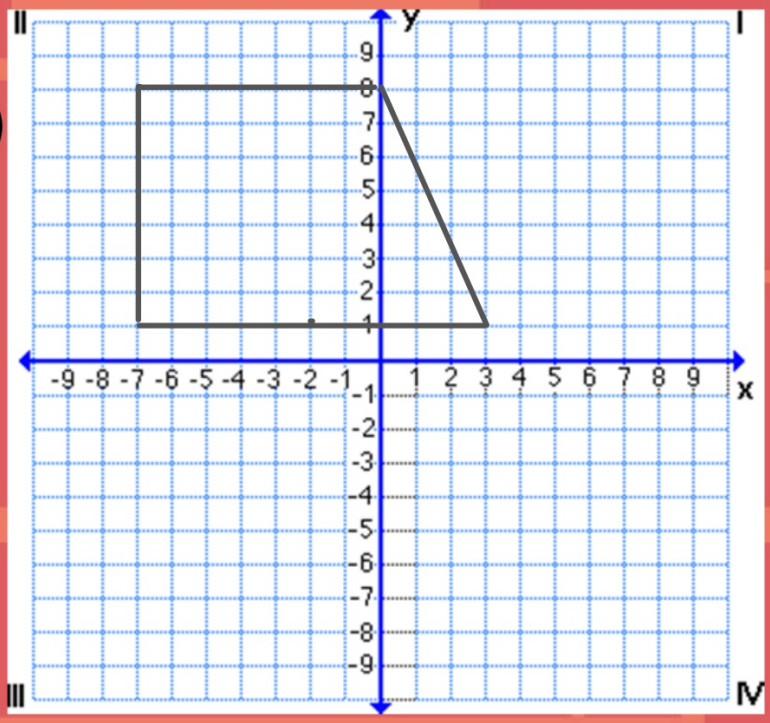
$Y + 5 = 2$

$-5 \quad -5$

-3

Warm Up

1)



Find the length of each side of the trapezoid.

Then find the area and perimeter.

Warm-up Day 3

1. a = 9 b =12 c = 25, is this a right triangle?

2. a = 5 b = 5 c =?

3. A square garden has an area of 36 find the diagonal length?

4) Find the distance and midpoint between the points (-2, 6) and (10, 20).

Poster Project: 100 pts, (correct 50, neatness 25, creativity 15, Illustrations 10pts)

	Pythagorean Theorem	Distance Formula	Midpoint Formula	**Simplifying Radicals**
What is it?				
How do you know when to use it?				
Problem	**Word Problem**	**Word Problem**	**Word Problem**	**1. Simplify Radicals** **2. Multiply Radicals** **3. Dividing Radicals** **4. Add/Subtract Radicals**
Solution With each Step				