

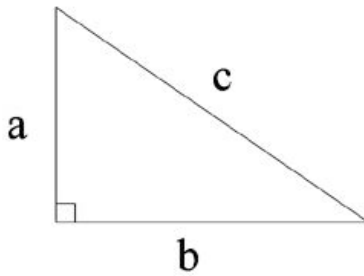
Worksheet on Distance Formula

NAME: _____

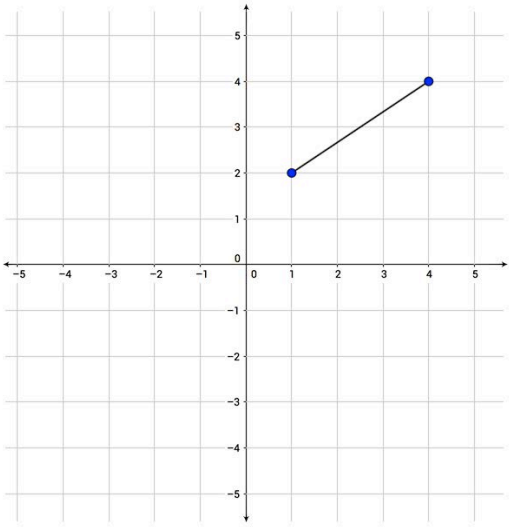
As preparation for class on Jan 31st, please do the following problems at home. You are required to hand in your work on Tuesday. This will be graded so please make sure to complete the assignment.

Recall the Pythagorean Theorem for calculating a side of a right triangle, where a and b are the two legs and c is the hypotenuse:

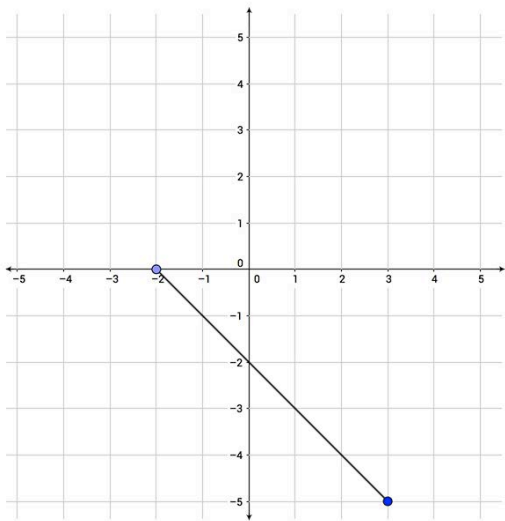
$$a^2 + b^2 = c^2$$



- 1.) Use this understanding to determine the length of the following lengths:

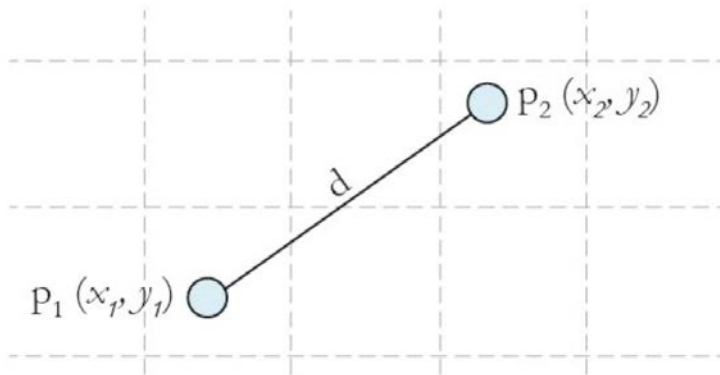


What are the lengths of the two legs? How did you calculate them (besides counting)?



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Use this understanding to figure out the length of the following line segment:



You have just derived the distance formula!

Note that given any two points with coordinates (x_1, y_1) and (x_2, y_2) , the distance, d (also called Euclidean distance), between them is given by the formula below.

$$\text{Euclidean distance } (d) = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$$

Use this formula to compute the distance between the following points:

1. $(1,1)$ and $(3,7)$

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

3. $(5,7)$ and $(11, -1)$

4. $(2,2)$ and $(7,7)$