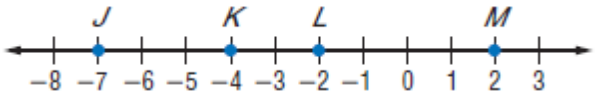
Distance classwork

Ex #1: Use the number line to find each measure



a) KM b) JM

c) KL d) JL

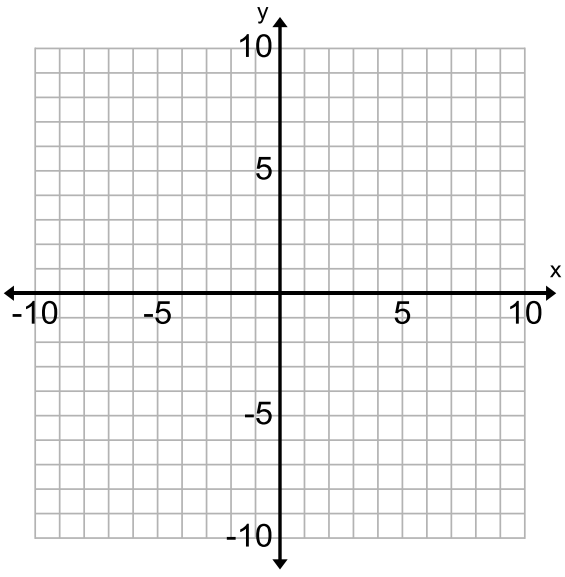
Notice how the space between the points is technically the **difference** between the numbers?

On a Coordinate Plane

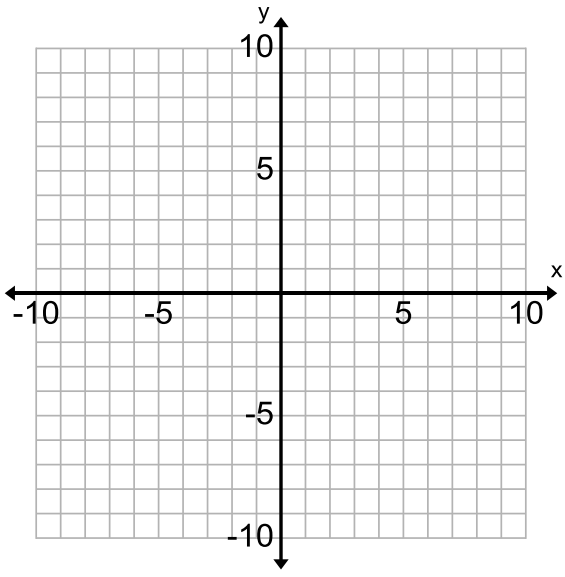
- Method 1 – Pythagorean Theorem
  - Graph points
  - $a^2 + b^2 = c^2$
- Method 2 – Distance formula $d = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

Ex #2: Use the Pythagorean Theorem to find the distance between each pair of points.

a) $R(5, 1)$, $S(-3, -3)$



b) $E(-4, 1)$, $F(3, -1)$



Ex #3: Use the Distance Formula to find the distance between each pair of points.

a) *D* (-5, 6), *E* (8, -4)

b) *G* (2, 0), *H* (8, 6)

c) *J* (0, 0), *K* (6, 8)

d) *K* (6, 8), *J* (0, 0)

Did you notice that problems c) and d) were the same points in reverse? This means that the distance between J and K **is the same as the distance** between K and J.

In other words, it doesn't matter what point is used for x1 and y1. That's good news!

Also think about this: the formula *squares* the difference. Isn't it true that:

$$8 - 5 \neq 5 - 8$$

But

$$(8 - 5)^2 = (5 - 8)^2$$