Quiz Today

Wednesday, Feb. 15

Any Questions First

Homework solutions from last day

Solutions to Distance Between Two Points Worksheet 1 From Monday

Solutions to Distance Between Two Points Worksheet 2 From Tuesday

Solutions to Extra Practice Linear Equations Worksheet From Tuesda

$$y = mx + b$$

$$m = \frac{y_2 - y_1}{x_2 - x_1}$$

(or equation)
$$y - y_1 = m(x - x_1)$$

Midpoint of a Line Segment

If M is the <u>coordinate</u> of the midpoint of a line segment joining $A(x_1, y_1)$ and $B(x_2, y_2)$, then the coordinates of M are given by:

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

Example

Find the midpoint between S(3, -4) and T(-15, 2).

$$\text{Mid} = \left[\frac{x_1 + x_2}{2} , \frac{y_1 + y_2}{2} \right]$$

$$= \left[\frac{(3) + (-15)}{2} , \frac{(-4) + (2)}{2} \right]$$

$$= \left[\frac{3 - 15}{2} , \frac{-4 + 2}{2} \right]$$

$$= \left[\frac{-12}{2} , \frac{-2}{2} \right]$$

Divide

$$= \left[-6 , -1 \right]$$

Example 2

The midpoint of AB is given by M(-1, 3) for the points A(-4, 2) and B(x,y). Find x and y.

$x_1 \quad y_1 \qquad\qquad x_2 \ y_2$

$$Mid = \left[\frac{x_1 + x_2}{2} \ , \ \frac{y_1 + y_2}{2} \right]$$

$$(-1, 3) = \left(\frac{-4+x}{2} \ , \ \frac{2+y}{2} \right)$$

$-1 \quad 3$

Set the × coordinates equal

$$\frac{(-4+x)}{2} \neq \frac{-1}{1}$$

cross multiply

$$1(-4+x) = (-1)(2)$$

$$-4 + x = -2$$

Solve for x

$$-4 + x = 2 \substack{+4 \\ +4}$$

X = 2

Set the y coordinates equal

$$\frac{(2+y)}{2} = \frac{3}{1}$$
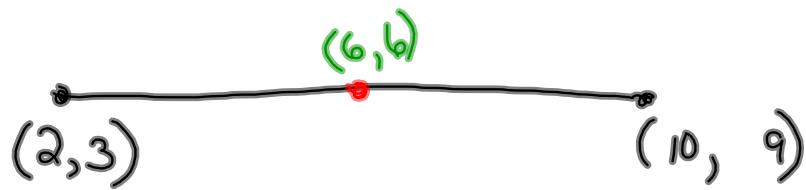
cross multiply

$$1(2+y) = 3(2)$$

$$2 + y = 6$$

$$\cancel{2} + y = 6^{-2}$$

$$\boxed{y = 4}$$

$B(x,y)$

$B = (2, 4)$

(6,6)

(2,3)   (10, 9)

$$\frac{x_1 + x_2}{2} \quad , \quad \frac{y_1 + y_2}{2}$$

$$\frac{2 + 10}{2} \quad , \quad \frac{3 + 9}{2}$$

$$\frac{12}{2} \quad , \quad \frac{12}{2}$$

$$6 \quad , \quad 6$$

Attachments

Solutions to Distance Worksheet #1.pdf

Solutions to Distance Worksheet #2.pdf

Solutions to Linear Equations - Extra Practice Worksheet.pdf