

Warm Up

Feb. 9, 2012

1) Determine the equation of the line that passes through the points

F(-1, -4) and G(1, -5)

x_1 y_1

x_2 y_2

(Leave the answer in $Ax + By + C = 0$)

$m = -\frac{1}{2}$ (1, -5)

Step 1

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

$$= \frac{(-5) - (-4)}{(1) - (-1)}$$

$$= \frac{-5 + 4}{1 + 1}$$

$$= \boxed{\frac{-1}{2}}$$

Step 2 use slope and one point

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

$$y - (-5) = -\frac{1}{2}(x - 1)$$

$$y + 5 = -\frac{1}{2}x + \frac{1}{2}$$

$$\overset{(2)}{y} + \overset{(2)}{5} = \overset{(2)}{-\frac{1}{2}}x + \overset{(2)}{\frac{1}{2}}$$

$$2y + 10 = -1x + 1$$

$$\overset{+1x}{2y} + 10 = \overset{+1x}{-1x} + \overset{-1}{1}$$

$$\boxed{1x + 2y + 9 = 0}$$

$Ax + By + C = 0$
form

Warm Up

Solutions

1) Determine the equation of the line that passes through the points F(-1, -4) and G(1, -5)

(Leave the answer in $Ax + By + C = 0$)

Step 1

$$\begin{aligned}m &= \frac{y_2 - y_1}{x_2 - x_1} \\&= \frac{(-5) - (-4)}{(1) - (-1)} \\&= \frac{(-5) + 4}{(1) + 1} \\&= \frac{-1}{2}\end{aligned}$$

Step 2

$$m = \frac{-1}{2} \quad (1, -5)$$

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

$$y - (-5) = \frac{-1}{2}(x - 1)$$

multiply the number in front of the bracket through the bracket

$$y - (-5) = \frac{-1x}{2} + \frac{1}{2}$$

$$y + 5 = \frac{-1x}{2} + \frac{1}{2}$$

To remove the fraction, multiply all terms by 2

$$^{(2)}y + 5^{(2)} = \frac{-1x}{2} + \frac{1}{2}$$

$$2y + 10 = \frac{-2x}{2} + \frac{2}{2}$$

simplify fraction

$$2y + 10 = -1x + 1$$

Rearrange for $Ax + By + C = 0$

$$2y + 10 = -1x + 1$$

$$^{+1x} 2y + 10 = -1^{+1x} + 1^{+1}$$

$$1x + 2y + 11 = 0$$

Worksheet - Linear Equations 2

$$y = mx + b$$

x-intercept
(x, 0)

#1 a b c f g h

2 b) $y = mx + b$

y-intercept
(0, y)

#3 b) (like warmup)

#4 c d, e, f
#8