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When looking for the x-intercept
in an equation,
let
equal zero.

INTERCEPTS

When looking for the y-intercept
in an equation,
let
x equal zero.

$4x-5y=40$

Can you see the intercepts?

Let y = 0 for the x-intercept.

$4x-5(0)=40$

$\frac{4x}{4}=\frac{40}{4}$

$x=10$

$(10,0)$

Let x = 0 for the y-intercept.

$4(0)-5y=40$

$\frac{-5y}{-5}=\frac{40}{-5}$

$y=-8$

$(0,-8)$

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Find the value of the x-intercept.

2. $3x + 10y - 40 = -10$

$3x + 10(0) - 40 = -10$

$3x - 40 = -10$

$3x = -10 + 40$

$\frac{3x}{3} = \frac{30}{3}$

$x = 10$

Example 3:
Find the equation of a line that passes through the points (-3,-3) and has a slope of ¾.

x, y

slope

$y - y_1 = m(x - x_1)$
Point · slope

Write what you know:

$m = \frac{3}{4}$ (-3,-3)

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

$y - (-3) = \frac{3}{4}(x - (-3))$

$y + 3 = \frac{3}{4}(x + 3)$

$\frac{3}{4}(x + 3)$

$\frac{3}{4}x + \frac{9}{4}$

$\frac{3}{1}$

$y + 3 = \frac{3}{4}x + \frac{9}{4}$ -3 -3

$\times 4$

$y + 3 - 3 = \frac{3}{4}x + \frac{9}{4} - 3$

$y = \frac{3}{4}x + \frac{9}{4} - \frac{12}{4}$

$y = \frac{3}{4}x - \frac{3}{4}$

$$y + 3 = \frac{3}{4}(x + 3)$$

$\times 4$ $\times 4$ $\times 4$

$$4y + 12 = 3(x + 3)$$

$$4y + 12 = 3x + 9$$

$$4y = 3x + 9 - 12$$

$$\frac{4y}{4} = \frac{3x}{4} - \frac{3}{4}$$

$$y = \frac{3x}{4} - \frac{3}{4}$$

Write an equation of a line (in slope -intercept form) given the following information,

1) x-intercept = 2, slope = 3/2

$(2, 0)$

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

$y - 0 = \frac{3}{2}(x - 2)$

$y = \frac{3}{2}x - \frac{6}{2}$

$y = \frac{3}{2}x - 3$

2) points (3, 1) & (-2, 3) lie on the line.

$x_1\ y_1\ x_2\ y_2$

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

$\frac{3 - 1}{-2 - 3} = \frac{2}{-5}$

$m = -\frac{2}{5}$

x, y

$(3, 1)\ m = -\frac{2}{5}$

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

$\times 5 \quad \times 5 \quad \times 5$

$y - 1 = -\frac{2}{5}(x - 3)$

$5y - 5 = -2(x - 3)$

$5y - 5 = -2x + 6$

$5y = 2x + 6 + 5$

$\frac{5y}{5} = \frac{-2x}{5} + \frac{11}{5}$

$y = -\frac{2}{5}x + \frac{11}{5}$

Attachments

Point slope form.docx