Equations of Lines

Slope - intercept Form

$y = mx + b$

Slope - Point Form

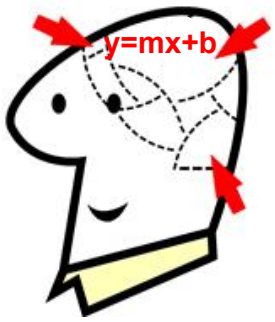
$y - y_1 = m(x - x_1)$

General Form

$ax + by + c = 0$

Slope - intercept Form

$y = mx + b$



Write the equation of a line with a slope of 6 and a y-intercept of 15.

$m = 6$

$b = 15$

$y = mx + b$

$y = 6x + 15$

Slope - Point Form

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

Determine the equation of a line with a slope of 5 and passing through the point (-3, 6).

$m = 5 \quad (-3, 6)$ (x_1, y_1)

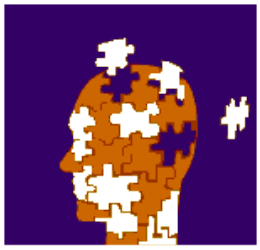
$y - y_1 = m(x - x_1)$

$y - 6 = 5(x + 3)$

$(x, y) \quad (-3, 6)$

General Form

$+ax + by + c = 0$



Determine the equation of a line with a slope of -8 and passing through (4, -2).

HINT... Use the slope-point form to help you.

$m = -8 \qquad (4, -2)$ (x_1, y_1)

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

$y + 2 = -8(x - 4)$

$y + 2 = -8x + 32$

$8x + y + 2 - 32 = 0$

$8x + y - 30 = 0$

Let's

Kick it up  a notch!

Determine the equation of a line passing through the points (11, 9) and (12, -3).

State your answer in slope-point form.

(x_1, y_1)

x_1 y_1

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

$m = \frac{-3-9}{12-11}$

$m = \frac{-12}{1}$

$m = -12$

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

$y - 9 = -12(x - 11)$

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

Determine the equation of a line passing through the points (11, 9) and (12, -3).

State your answer in slope-point form.

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

$$m = \frac{-3 - 9}{12 - 11}$$

$$m = \frac{-12}{1}$$

$$y - 9 = -12(x - 11)$$

$$y - 9 = -12x + 132$$

$$12x + y - 9 - 132 = 0$$

$$12x + y - 141 = 0$$

$$y - (-3) = -12(x - 12)$$

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

$$y + 3 = -12x + 144$$

$$12x + y + 3 - 144 = 0$$

$$12x + y - 141 = 0$$

Write the following in General form... ax + by + c = 0

$y = -4x - 7$

$4x + y + 7 = 0$

$y = -\frac{3}{2}x - 9$

$2y = -3x - 18$

$3x + 2y + 18 = 0$

$y - 3 = \frac{4}{5}(x - 2)$

$5y - 15 = 4(x - 2)$

$5y - 15 = 4x - 8$

$0 = 4x - 5y - 8 + 15$

$4x - 5y + 7 = 0$

State the Slope and the Point:

a) $y - 5 = 6(x - 3)$

Slope= 6 Point= (3, 5)

b) $y + 7 = 2/3(x - 9)$

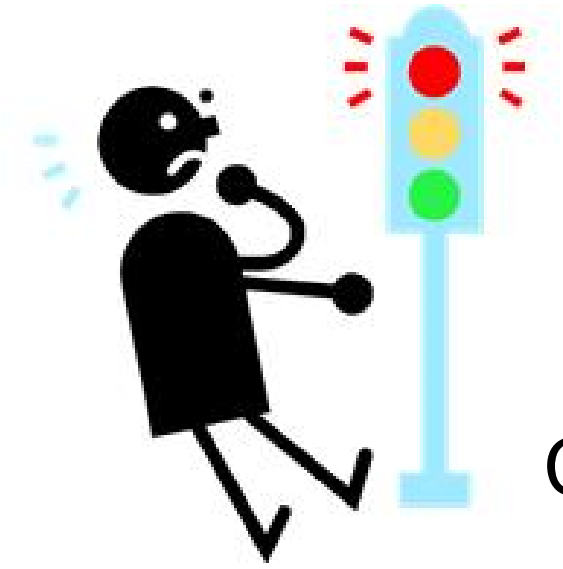
Slope= 2/3 Point= (9, -7)

c) $y - 8 = -4(x + 8)$

Slope= -4 Point= (-8, +8)

d) $y + 7 = 1/3(x - 4)$

Slope= 1/3 Point= (4, -7)



Check out

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Questions 4, 5(State answer in general form) 9a, 12