

First Name: _____

Last Name: _____

L41 - EQ - All forms of an Equation of a Line

Use the following information to answer Q1:

A line passes through the points (-6,-3) and (2,2).

$x_1 \ y_1 \quad x_2 \ y_2$

Q1: The equation of the line, in *Slope y-Intercept Form*, is $y = \frac{d}{e}x + \frac{f}{g}$, where **d, e, f** and **g** are __, __, __ and __.

(Record your **four digit** answer in the Numerical Response boxes below)

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{2 - (-3)}{2 - (-6)} = \frac{5}{8}$$

5	8	3	4
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$$y = \frac{5}{8}x + b \quad \text{Using } (2,2)$$

$$2 = \left(\frac{5}{8}\right)(2) + b$$

$$2 = \frac{5}{4} + b$$

$$\frac{3}{4} = b$$



$$y = \frac{5}{8}x + \frac{3}{4}$$

$$y = \frac{d}{e}x + \frac{f}{g}$$

$$d = 5$$

$$e = 8$$

$$f = 3$$

$$g = 4$$

Q2: (Long Answer) Write the equation $4x + 3y - 14 = 0$ in *Slope y-Intercept Form*. (2 marks)

$$-4x \quad -4x$$

$$3y - 14 = -4x$$

$$+14 \quad +14$$

$$3y = -4x + 14$$

$$\div 3 \quad \div 3 \quad \div 3$$

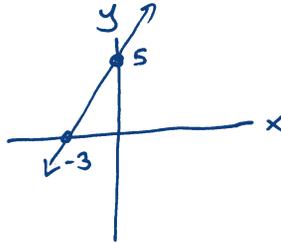
$$y = -\frac{4}{3}x + \frac{14}{3}$$

Use the following information to answer Q3-Q4:

A line has a y-intercept of 5 and an x-intercept of -3.

Q3: The slope of the line is

- a. $\frac{3}{5}$
- b. $-\frac{3}{5}$
- c. $\frac{5}{3}$
- d. $-\frac{5}{3}$



$$m = \frac{\text{rise}}{\text{run}} = \frac{5}{3}$$

Q4: The line can be written in the form $ax - by + cd = 0$, where $a, b, c,$ and d are __, __, __, and __.

(Record your **four digit** answer in the Numerical Response boxes below)

5 3 1 5

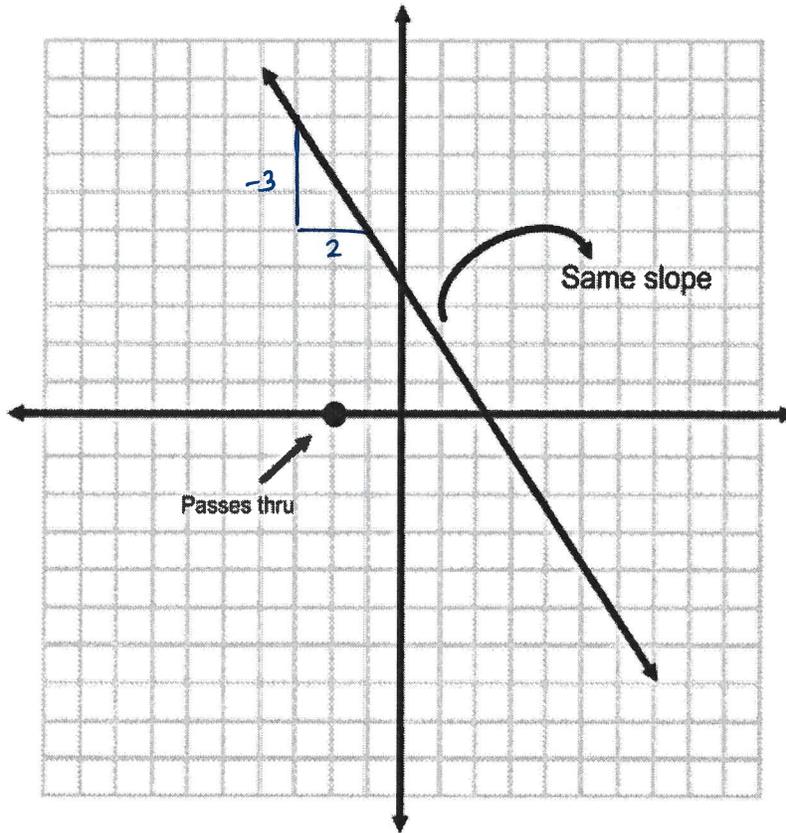
$$\begin{aligned}
 y &= mx + b \\
 y &= \frac{5}{3}x + 5 \\
 -y & \quad -y \\
 0 &= \frac{5}{3}x - 1y + 5 \\
 \times 3 \quad \times 3 \quad \times 3 \quad \times 3 \\
 0 &= 5x - 3y + 15 \\
 ax - by + cd &= 0
 \end{aligned}$$

$a=5$
 $b=3$
 $c=1$
 $d=5$

$$\frac{1}{2} = y$$

$$m = -\frac{3}{2}$$

Q5: (Long Answer) A line has the same slope as the linear function graphed below, but has an x-intercept of -2. Write the equation of the line in general form. (2 marks)



$$y = mx + b$$

$$y = -\frac{3}{2}x + b \quad \text{Use } (-2, 0)$$

$$0 = -\frac{3}{2}(-2) + b$$

$$0 = 3 + b$$

$$-3 = b$$

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

$$+\frac{3}{2}x \quad +\frac{3}{2}x$$

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

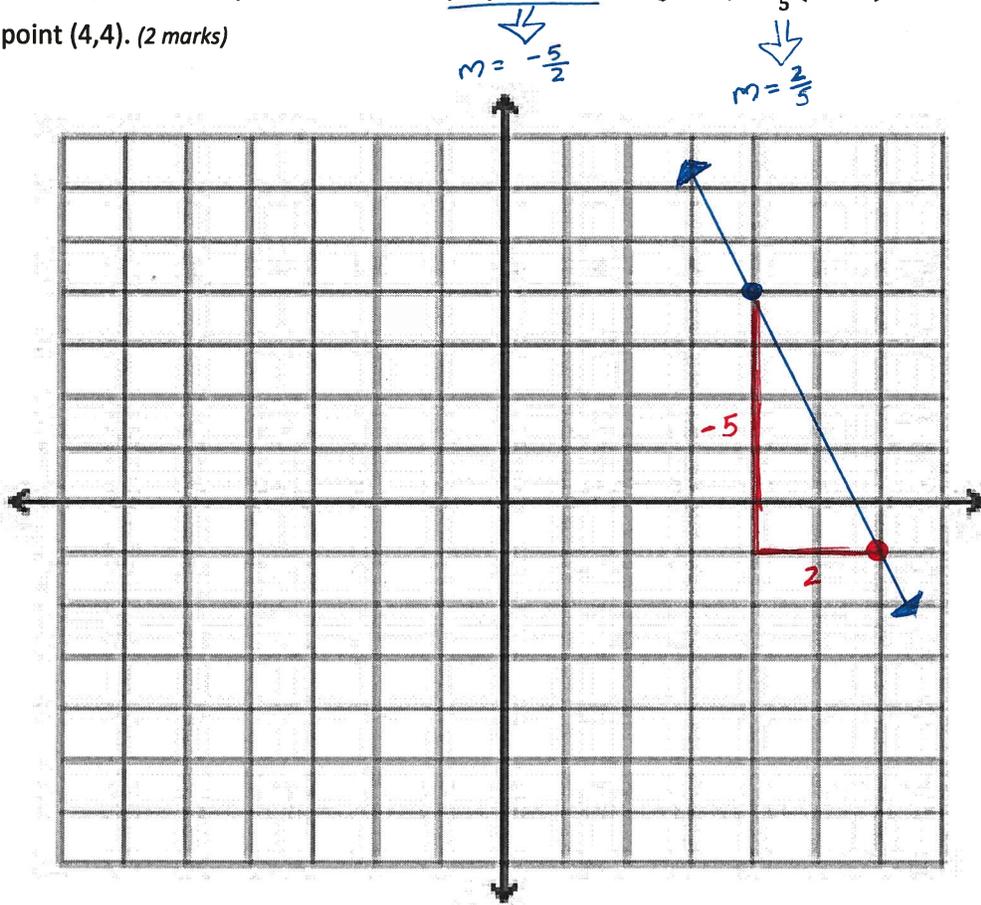
$$\frac{3}{2}x + y + 3 = 0$$

$$\times 2 \quad \times 2 \quad \times 2 \quad \times 2$$

$$\boxed{3x + 2y + 6 = 0}$$

KEY

Q6: (Long Answer) Graph the line that is perpendicular to $(y - 5) = \frac{2}{5}(x + 1)$ and that passes through the point $(4,4)$. (2 marks)



MARKING:

Beginning	0.0 – 4.0
Progressing	4.5 – 6.5
Competent	7.0 – 8.5
Exemplary	9.0