

Quiz #1: Monday, Sep 12

Name: _____ Solution Key _____

Recitation R02 (M)

A line passes through the points $(1, 6)$ and $(-1, 2)$.

1. (5 points) Find the slope of this line.

Solution: We use the two-point slope formula:

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - 2}{1 - (-1)} = \frac{4}{2} = 2$$

Hence, the slope is 2.

2. (5 points) Write an equation for this line. You do not need to simplify your answer.

Solution: From the point-slope formula $y - y_1 = m(x - x_1)$, we have two equivalent equations for this line:

$$y - 6 = 2(x - 1) \qquad \text{or} \qquad y - 2 = 2(x + 1)$$

Both simplify to $y = 2x + 4$.

Quiz #1: Monday, Sep 12

Name: _____ Solution Key _____

Recitation R02 (M)

A line passes through the points $(1, -2)$ and $(3, 6)$.

1. (5 points) Find the slope of this line.

Solution: We use the two-point slope formula:

$$m = \frac{y_2 - y_1}{x_2 - x_1} = \frac{6 - (-2)}{3 - 1} = \frac{8}{2} = 4.$$

Hence, the slope is 4.

2. (5 points) Write an equation for this line. You do not need to simplify your answer.

Solution: From the point-slope formula $y - y_1 = m(x - x_1)$, we have two equivalent equations for this line:

$$y - 6 = 4(x - 3) \qquad \text{or} \qquad y + 2 = 4(x - 1)$$

Both simplify to $y = 4x - 6$.

Quiz #1: Tuesday, Sep 13

Name: _____ Solution Key _____

Recitation R04 (Tu)

The equation $2x + 4y - 4 = 0$ describes a line in the xy -plane.

1. (5 points) Find the slope of this line.

Solution: We isolate y to put the equation into slope-intercept form:

$$2x + 4y - 4 = 0$$

$$4y = -2x + 4$$

$$y = \frac{-2x + 4}{4} = -\frac{2x}{4} + \frac{4}{4} = -\frac{1}{2}x + 1$$

Thus, $y = -\frac{1}{2}x + 1$. The slope is the coefficient of x , namely $-\frac{1}{2}$.

2. (5 points) Is the point $(2, 1)$ on the line? Why?

Solution: We check whether setting $x = 2$ and $y = 1$ satisfies the equation:

$$2(2) + 4(1) - 4 = 4 + 4 - 4 = 4 \neq 0.$$

Since the left-hand side of the equation of the line does not evaluate to the right-hand side, 0, this point is not on the line.

Quiz #1: Tuesday, Sep 13

Name: _____ Solution Key _____

Recitation R04 (Tu)

The equation $9y - 3x + 18 = 0$ describes a line in the xy -plane.

1. (5 points) Find the slope of this line.

Solution: We isolate y to put the equation into slope-intercept form:

$$9y - 3x + 18 = 0$$

$$9y = 3x - 18$$

$$y = \frac{3x - 18}{9} = \frac{3x}{9} - \frac{18}{9} = \frac{1}{3}x - 2$$

Thus, $y = \frac{1}{3}x - 2$. The slope is the coefficient of x , namely $\frac{1}{3}$.

2. (5 points) Is the point $(3, -1)$ on the line? Why?

Solution: We check whether setting $x = 3$ and $y = -1$ satisfies the equation:

$$9(-1) - 3(3) + 18 = -9 - 9 + 18 = 0.$$

Since the left-hand side of the equation of the line evaluates to the right-hand side, 0, this point is on the line.

Quiz #1: Wednesday, Sep 14

Name: _____ Solution Key _____

Recitation R03 (W)

The equation $8x - 2y - 6 = 0$ describes a line in the xy -plane.

1. (5 points) Find a linear function $f(x)$ so this line is the graph $y = f(x)$.

Solution: $f(x) = \underline{\hspace{2cm} 4x - 3 \hspace{2cm}}$

We isolate y :

$$\begin{aligned} 8x - 2y - 6 &= 0 \\ 2y &= 8x - 6 \\ y &= \frac{8x - 6}{2} = \frac{8x}{2} - \frac{6}{2} = 4x - 3. \end{aligned}$$

Then $f(x) = y = 4x - 3$ is the linear function.

2. (5 points) Find the slope of this line.

Solution: The slope is the coefficient of x in the function, namely 4.

Quiz #1: Wednesday, Sep 14

Name: _____ Solution Key _____

Recitation R03 (W)

The equation $2y - 4x - 8 = 0$ describes a line in the xy -plane.

1. (5 points) Find a linear function $f(x)$ so this line is the graph $y = f(x)$.

Solution: $f(x) = \underline{\hspace{2cm} 2x + 4 \hspace{2cm}}$

We isolate y :

$$2y - 4x - 8 = 0$$

$$2y = 4x + 8$$

$$y = \frac{4x + 8}{2} = \frac{4x}{2} + \frac{8}{2} = 2x + 4$$

Then $f(x) = y = 2x + 4$ is the linear function.

2. (5 points) Find the slope of this line.

Solution: The slope is the coefficient of x in the function, namely 2.