

This is the Answer Key for Module 2 Version B.

6. First, find the equation of the line containing the two points below. Then, write the equation as $y = mx + b$ and choose the intervals that contain m and b .

$$(-7, 3) \text{ and } (-2, -7)$$

The solution is $y = -2.0x - 11.0$

A. $m \in [1, 3]$ and $b \in [-3.21, -2.7]$

Corresponds to using the negative slope and the correct equation.

B. $m \in [-8, 1]$ and $b \in [-5.28, -3.9]$

Corresponds to using the correct slope/equation but not distributing correctly using the second point.

C. $m \in [-6, 1]$ and $b \in [-11.71, -10.56]$

* Correct option.

D. $m \in [-6, 0]$ and $b \in [9.47, 10.6]$

Corresponds to using the correct slope/equation but not distributing correctly using the first point.

E. $m \in [-5, 0]$ and $b \in [10.75, 11.35]$

Corresponds to using the correct slope and getting the negative y-intercept.

General Comments: Remember to keep your points in order when plugging in to the slope formula.

7. Write the equation of the line in the graph below in the form $Ax + By = C$. Then, choose the intervals that contain A , B , and C .

$$\text{Equation that was graphed: } 1.5x - 5$$

The solution is $3x - 2y = 10$

A. $A \in [0.81, 1.94]$, $B \in [-1.54, -0.08]$, and $C \in [4.1, 8]$

Corresponds to not removing rational values.

B. $A \in [-0.92, 1.2]$, $B \in [0.72, 1.14]$, and $C \in [-18.2, -13.1]$

Corresponds to using the opposite slope of the graph and not removing rational values.

C. $A \in [-3.2, -2.25]$, $B \in [1.34, 2.4]$, and $C \in [-10.6, -6.2]$

Corresponds to not making A positive (by multiplying the equation by -1).

D. $A \in [1.84, 2.89]$, $B \in [2.71, 3.29]$, and $C \in [-18.2, -13.1]$

Corresponds to using the opposite slope of the graph, but did everything else correctly.

E. $A \in [2.99, 3.88]$, $B \in [-2.12, -1.25]$, and $C \in [6.1, 13.3]$

* Correct option.

General Comments: Standard form is supposed to have $A > 0$ and all fractions removed.

8. Find the equation of the line described below. Write the linear equation as $y = mx + b$ and choose the intervals that contain m and b .

$$\text{Perpendicular to } 7x + 4y = 4 \text{ and passing through the point } (-2, 5).$$

The solution is $y = 0.571428571429x + 6.14285714286$

- A. $m \in [-1, 2]$ and $b \in [-1, 1]$

Corresponds to using the correct slope and mis-distributing while simplifying to slope-intercept form.

- B. $m \in [-1, -0.1]$ and $b \in [3, 6]$

Corresponds to using the negative slope.

- C. $m \in [-0.2, 1.3]$ and $b \in [4, 8]$

* Correct option.

- D. $m \in [1.6, 2.2]$ and $b \in [4, 8]$

Corresponds to using the reciprocal slope ($1/m$).

- E. $m \in [0, 3]$ and $b \in [-8, -3]$

Corresponds to using the correct slope and getting the negative y -intercept.

General Comments: Parallel slope is the same and perpendicular slope is opposite reciprocal. Opposite reciprocal means flipping the fraction and changing the sign (positive to negative or negative to positive).

9. Solve the equation below. Then, choose the interval that contains the solution.

$$-12(-2 - 14x) = -15(-6x + 8)$$

The solution is -1.846

- A. $x \in [0.37, 0.53]$

Corresponds to getting the negative of the actual solution.

- B. $x \in [0.44, 0.57]$

Corresponds to not distributing the negative in front of the first parentheses correctly.

- C. $x \in [-1.96, -1.79]$

* Correct option.

- D. $x \in [0.93, 1.38]$

Corresponds to not distributing the negative in front of the second parentheses correctly.

- E. There are no Real solutions.

Corresponds to students thinking a fraction means there is no solution to the equation.

General Comments: The most common mistake on this question is to not distribute correctly.

10. Solve the linear equation below. Then, choose the interval that contains the solution.

$$\frac{6x + 7}{5} - \frac{8x - 7}{4} = \frac{-6x - 8}{3}$$

The solution is -4.847

- A. $x \in [-5.67, -3.51]$

* Correct option.

- B. $x \in [-2.09, -1.65]$

Corresponds to not distributing the negative correctly for the second fraction.

C. $x \in [-18.72, -17.11]$

Corresponds to dividing only the first term for each fraction (rather than multiplying to remove the fractions).

D. $x \in [-1.92, -1.2]$

Corresponds to dividing only the second term for each fraction (rather than multiplying to remove the fractions).

E. There are no Real solutions.

Corresponds to students thinking a fraction means there is no solution to the equation.

General Comments: If you are having trouble with this problem, try to remove a fraction at a time by multiplying each term by the denominator.
