

This is the Answer Key for Module 2 Version MU.

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  $b$ .

$$(8, -8) \text{ and } (-2, -6)$$

The solution is  $y = -0.2x - 6.4$

A.  $m \in [-0.36, 0.11]$  and  $b \in [-7.11, -6.33]$

\* Correct option.

B.  $m \in [0.1, 0.3]$  and  $b \in [-5.82, -5.41]$

Corresponds to using the negative slope and the correct equation.

C.  $m \in [-2, 1]$  and  $b \in [4.7, 6.77]$

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

D.  $m \in [-1, 3]$  and  $b \in [-4.51, -2.7]$

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

E.  $m \in [-1, 1]$  and  $b \in [-16.77, -15.98]$

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

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

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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  $C$ .

$$\text{Equation that was graphed: } 0.4x + 2$$

The solution is  $2x - 5y = -10$

A.  $A \in [-2.21, -1.5]$ ,  $B \in [3.63, 6.84]$ , and  $C \in [8, 12]$

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

B.  $A \in [0.07, 0.67]$ ,  $B \in [-2.31, 0.99]$ , and  $C \in [-6, 1]$

Corresponds to not removing rational values.

C.  $A \in [2.44, 2.72]$ ,  $B \in [0.47, 1.08]$ , and  $C \in [3, 8]$

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

D.  $A \in [4.52, 5.07]$ ,  $B \in [1.36, 2.96]$ , and  $C \in [3, 8]$

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

E.  $A \in [1.49, 2.37]$ ,  $B \in [-6.45, -4.66]$ , and  $C \in [-13, -4]$

\* Correct option.

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

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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  $b$ .

$$\text{Perpendicular to } 7x + 8y = 15 \text{ and passing through the point } (5, 10).$$

The solution is  $y = 1.14285714286x + 4.28571428571$

A.  $m \in [-1, 2]$  and  $b \in [-6, -2]$

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

B.  $m \in [0.95, 1.28]$  and  $b \in [4, 6]$

\* Correct option.

C.  $m \in [0, 3]$  and  $b \in [-1, 1]$

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

D.  $m \in [-1.18, -0.97]$  and  $b \in [14, 18]$

Corresponds to using the negative slope.

E.  $m \in [0.78, 0.92]$  and  $b \in [4, 7]$

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

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).

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