This is the Answer Key for Module 2 Version A.

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.

$$(-8, 6) \text{ and } (-2, 9)$$

The solution is $y = 0.5x + 10.0$

  A. $m \in [0, 3]$ and $b \in [13.2, 16.6]$

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

  B. $m \in [-1, 2]$ and $b \in [10.2, 11.9]$

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

  C. $m \in [-4, 0]$ and $b \in [5.7, 8.2]$

  Corresponds to using the negative slope and the correct equation.

  D. $m \in [-1, 2]$ and $b \in [-11.1, -8.9]$

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

  E. $m \in [0, 4]$ and $b \in [9.3, 10.8]$

  * Correct option.

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.

Equation that was graphed: $0.75x + 4$

The solution is $3x - 4y = -16$

  A. $A \in [3.83, 4.77]$, $B \in [2.93, 3.78]$, and $C \in [10.1, 14]$

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

  B. $A \in [0.47, 1.3]$, $B \in [-1.71, 0.26]$, and $C \in [-6.1, -0.5]$

  Corresponds to not removing rational values.

  C. $A \in [2.25, 3.5]$, $B \in [-4.97, -3.63]$, and $C \in [-16.9, -14.9]$

  * Correct option.

  D. $A \in [-3.06, -2.71]$, $B \in [3.27, 5.95]$, and $C \in [13.9, 16.8]$

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

  E. $A \in [0.88, 1.57]$, $B \in [0.51, 1.91]$, and $C \in [10.1, 14]$

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

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.

Perpendicular to $5x - 9y = 3$ and passing through the point $(-6, -7)$.

The solution is $y = -1.8x - 17.8$

A. $m \in [-4, -1]$ and $b \in [-1, 3]$

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

B. $m \in [1, 2.3]$ and $b \in [1, 7]$

   Corresponds to using the negative slope.

C. $m \in [-4, -1]$ and $b \in [16, 23]$

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

D. $m \in [-1.3, 0.4]$ and $b \in [-19, -17]$

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

E. $m \in [-2.2, -1.5]$ and $b \in [-20, -17]$

   * Correct option.

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).