1. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-6 + 7x > 9x \text{ or } 9 + 9x < 11x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [-3, -1]$ and $b \in [4, 8.5]$

B. $(-\infty, a) \cup (b, \infty)$, where $a \in [-8.5, -3.5]$ and $b \in [-5, 4]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-4, -1]$ and $b \in [3.5, 6.5]$

D. $(-\infty, a] \cup [b, \infty)$, where $a \in [-7.5, -3.5]$ and $b \in [1.5, 3.6]$

E. $(-\infty, \infty)$

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2. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

Less than 6 units from the number 9.

A. $(-\infty, -3) \cup (15, \infty)$

B. $(-\infty, -3] \cup [15, \infty)$

C. $[-3, 15]$

D. $(-3, 15)$

E. None of the above

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3. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$6x - 9 \geq 7x + 6$$

A. $[a, \infty)$, where $a \in [13, 16]$

B. $(-\infty, a]$, where $a \in [-21, -14]$

C. $(-\infty, a]$, where $a \in [12, 17]$

D. $[a, \infty)$, where $a \in [-15, -8]$

E. None of the above.

4. Using an interval or intervals, describe all the x-values within or including a distance of the given values.

No less than 3 units from the number 7.

A. $(-\infty, 4] \cup [10, \infty)$

B. $(-\infty, 4) \cup (10, \infty)$

C. $[4, 10]$

D. $(4, 10)$

E. None of the above

5. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-4}{7} - \frac{6}{3}x < \frac{3}{4}x + \frac{8}{2}$$

A. $(-\infty, a)$, where $a \in [-2.66, -0.66]$

B. $(-\infty, a)$, where $a \in [-1.34, 3.66]$

C. (a, ∞), where $a \in [1.66, 2.66]$

D. (a, ∞), where $a \in [-2.66, -0.66]$

E. None of the above.

6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7 + 4x > 5x \text{ or } -8 + 6x < 9x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [-0.33, 8.67]$ and $b \in [4, 8]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-7, -2]$ and $b \in [-7.67, 0.33]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-0.33, 4.67]$ and $b \in [6, 9]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-10, -6]$ and $b \in [-6.67, 2.33]$

E. $(-\infty, \infty)$

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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{7}{9} - \frac{4}{3}x \geq \frac{5}{5}x - \frac{8}{4}$$

A. $(-\infty, a]$, where $a \in [-1.19, -0.19]$

B. $[a, \infty)$, where $a \in [-4.19, 0.81]$

C. $(-\infty, a]$, where $a \in [1.19, 3.19]$

D. $[a, \infty)$, where $a \in [0.19, 6.19]$

E. None of the above.

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8. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$4x + 9 < 7x + 3$$

A. (a, ∞), where $a \in [-1, 2.3]$

B. (a, ∞), where $a \in [-3.6, 0]$

C. $(-\infty, a)$, where $a \in [-5, 0]$

D. $(-\infty, a)$, where $a \in [1, 8]$

E. None of the above.

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9. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$3 - 8x < \frac{-52x - 3}{7} \leq 7 - 8x$$

A. $(a, b]$, where $a \in [-8, -5]$ and $b \in [-17, -11]$

B. $[a, b)$, where $a \in [-6, -3]$ and $b \in [-16, -10]$

C. $(-\infty, a] \cup (b, \infty)$, where $a \in [-9, -5]$ and $b \in [-17, -7]$

D. $(-\infty, a) \cup [b, \infty)$, where $a \in [-7, -3]$ and $b \in [-13, -10]$

E. None of the above.

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10. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-6 + 5x < \frac{45x - 9}{5} \leq 6 + 8x$$

A. $(-\infty, a] \cup (b, \infty)$, where $a \in [-7.05, -0.05]$ and $b \in [7.8, 9.8]$

B. $[a, b)$, where $a \in [-2.8, -0.6]$ and $b \in [6.8, 10.8]$

C. $(a, b]$, where $a \in [-2.2, 0.1]$ and $b \in [7.8, 9.8]$

D. $(-\infty, a) \cup [b, \infty)$, where $a \in [-1.3, 0.4]$ and $b \in [7.8, 11.8]$

E. None of the above.
