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

$$\frac{-4}{3} - \frac{6}{4}x > \frac{7}{9}x + \frac{10}{6}$$

A. (a, ∞), where $a \in [-3, 0]$

B. $(-\infty, a)$, where $a \in [0, 3]$

C. (a, ∞), where $a \in [0.75, 2.25]$

D. $(-\infty, a)$, where $a \in [-3, 0.75]$

E. None of the above.

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

$$-8 + 9x > 10x \text{ or } -3 + 3x < 4x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [1.5, 10.5]$ and $b \in [7.5, 12.75]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-12.75, -3.75]$ and $b \in [-7.5, -2.25]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-12.75, -5.25]$ and $b \in [-7.5, -1.5]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [0.75, 7.5]$ and $b \in [5.25, 13.5]$

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

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

$$-7 + 6x < \frac{51x - 4}{8} \leq 7 + 3x$$

A. $(a, b]$, where $a \in [12, 21]$ and $b \in [-6.75, 1.5]$

B. $(-\infty, a) \cup [b, \infty)$, where $a \in [15.75, 21]$ and $b \in [-3, -1.12]$

C. $(-\infty, a] \cup (b, \infty)$, where $a \in [12.75, 18.75]$ and $b \in [-3.75, -1.5]$

D. $[a, b)$, where $a \in [15.75, 20.25]$ and $b \in [-3.75, 0]$

E. None of the above.

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

More than 4 units from the number 2.

A. $[-2, 6]$

B. $(-\infty, -2] \cup [6, \infty)$

C. $(-2, 6)$

D. $(-\infty, -2) \cup (6, \infty)$

E. None of the above

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

$$-4x - 3 < 9x + 6$$

A. $(-\infty, a)$, where $a \in [0.09, 1.14]$

B. (a, ∞), where $a \in [-6.69, 0.31]$

C. $(-\infty, a)$, where $a \in [-2.02, -0.57]$

D. (a, ∞), where $a \in [-0.31, 1.69]$

E. None of the above.

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

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

A. $(-\infty, a) \cup (b, \infty)$, where $a \in [-5.25, -3.75]$ and $b \in [-1.5, 2.25]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-3.75, 3]$ and $b \in [3.75, 6]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-3, 2.25]$ and $b \in [2.25, 9]$

D. $(-\infty, a] \cup [b, \infty)$, where $a \in [-7.5, -3]$ and $b \in [0, 3.75]$

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

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

No more than 6 units from the number 4.

A. $(-2, 10)$

B. $(-\infty, -2) \cup (10, \infty)$

C. $(-\infty, -2] \cup [10, \infty)$

D. $[-2, 10]$

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.

$$-9 + 3x \leq \frac{25x + 8}{7} < -9 - 4x$$

A. $[a, b)$, where $a \in [-18.75, -13.5]$ and $b \in [-3, 0]$

B. $(-\infty, a] \cup (b, \infty)$, where $a \in [-21.75, -8.25]$ and $b \in [-3, 0]$

C. $(a, b]$, where $a \in [-18.75, -15.75]$ and $b \in [-4.5, 0]$

D. $(-\infty, a) \cup [b, \infty)$, where $a \in [-18.75, -15]$ and $b \in [-5.25, -0.75]$

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.

$$3x + 9 \leq 6x + 8$$

A. $(-\infty, a]$, where $a \in [-0.64, -0.27]$

B. $(-\infty, a]$, where $a \in [0.2, 1.37]$

C. $[a, \infty)$, where $a \in [-3.7, 0.3]$

D. $[a, \infty)$, where $a \in [-0.3, 4.9]$

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.

$$\frac{-6}{2} + \frac{7}{8}x \geq \frac{9}{3}x + \frac{10}{7}$$

A. $(-\infty, a]$, where $a \in [1.5, 3.75]$

B. $[a, \infty)$, where $a \in [-0.75, 3.75]$

C. $[a, \infty)$, where $a \in [-2.25, 0.75]$

D. $(-\infty, a]$, where $a \in [-3, -0.75]$

E. None of the above.
