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

$$-3 + 6x > 8x \text{ or } 6 + 8x < 9x$$

A. $(-\infty, a] \cup [b, \infty)$, where $a \in [-3.5, 1.5]$ and $b \in [6, 8]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-7, -3]$ and $b \in [1.5, 2.5]$

C. $(-\infty, a) \cup (b, \infty)$, where $a \in [-9, -4]$ and $b \in [-0.5, 3.5]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-5.5, -0.5]$ and $b \in [5, 12]$

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.

More than 2 units from the number 10.

A. $[-8, 12]$

B. $(-\infty, -8) \cup (12, \infty)$

C. $(-\infty, -8] \cup [12, \infty)$

D. $(-8, 12)$

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.

$$\frac{4}{3} - \frac{4}{4}x \geq \frac{8}{9}x + \frac{9}{2}$$

A. $(-\infty, a]$, where $a \in [0.68, 3.68]$

B. $[a, \infty)$, where $a \in [-1.68, 0.32]$

C. $[a, \infty)$, where $a \in [-1.32, 4.68]$

D. $(-\infty, a]$, where $a \in [-1.68, 1.32]$

E. None of the above.

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

$$-9x + 3 < -5x + 9$$

A. $(-\infty, a)$, where $a \in [-5.5, -0.5]$

B. (a, ∞), where $a \in [-0.9, 2.1]$

C. (a, ∞), where $a \in [-2.4, -0.3]$

D. $(-\infty, a)$, where $a \in [0.5, 5.5]$

E. None of the above.

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5. 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 2.

A. $[-1, 5]$

B. $(-\infty, -1) \cup (5, \infty)$

C. $(-\infty, -1] \cup [5, \infty)$

D. $(-1, 5)$

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.

$$\frac{10}{8} + \frac{4}{5}x \geq \frac{5}{6}x + \frac{6}{9}$$

A. $(-\infty, a]$, where $a \in [-17.5, -15.5]$

B. $(-\infty, a]$, where $a \in [16.5, 19.5]$

C. $[a, \infty)$, where $a \in [15.5, 23.5]$

D. $[a, \infty)$, where $a \in [-19.5, -13.5]$

E. None of the above.

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

$$-7x + 10 \leq 9x - 6$$

A. $[a, \infty)$, where $a \in [0.6, 1.6]$

B. $(-\infty, a]$, where $a \in [0.5, 2]$

C. $(-\infty, a]$, where $a \in [-5.6, -0.9]$

D. $[a, \infty)$, where $a \in [-4.6, -0.6]$

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.

$$-5 + 6x \leq \frac{50x - 5}{5} < 4 + 9x$$

A. $[a, b)$, where $a \in [0, 1.5]$ and $b \in [-5, 1]$

B. $(-\infty, a] \cup (b, \infty)$, where $a \in [0.9, 1.7]$ and $b \in [-6, -3]$

C. $(a, b]$, where $a \in [0, 1.43]$ and $b \in [-9, -2]$

D. $(-\infty, a) \cup [b, \infty)$, where $a \in [0.4, 2]$ and $b \in [-8, -2]$

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.

$$8 + 8x > 10x \text{ or } 5 + 7x < 8x$$

A. $(-\infty, a) \cup (b, \infty)$, where $a \in [1, 10]$ and $b \in [1, 6]$

B. $(-\infty, a] \cup [b, \infty)$, where $a \in [-5, 0]$ and $b \in [-10, -1]$

C. $(-\infty, a] \cup [b, \infty)$, where $a \in [0, 8]$ and $b \in [5, 6]$

D. $(-\infty, a) \cup (b, \infty)$, where $a \in [-6, -2]$ and $b \in [-5, 0]$

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

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

$$-4 - 7x \leq \frac{-61x - 9}{9} < 3 - 7x$$

A. $[a, b)$, where $a \in [12.5, 20.5]$ and $b \in [-19, -14]$

B. $(-\infty, a) \cup [b, \infty)$, where $a \in [9.5, 16.5]$ and $b \in [-21, -14]$

C. $(a, b]$, where $a \in [10.5, 15.5]$ and $b \in [-21, -15]$

D. $(-\infty, a] \cup (b, \infty)$, where $a \in [10.5, 14.5]$ and $b \in [-21, -17]$

E. None of the above.
