

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

$$3 - 3x \leq \frac{-19x + 5}{8} < 5 - 3x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [2.8, 5.8]$  and  $b \in [5, 11]$
  - B.  $(a, b]$ , where  $a \in [1.8, 8.8]$  and  $b \in [6, 8]$
  - C.  $[a, b)$ , where  $a \in [3.8, 6.8]$  and  $b \in [6, 8]$
  - D.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-1.2, 12.8]$  and  $b \in [5, 11]$
  - 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.

$$\frac{10}{6} - \frac{3}{2}x \geq \frac{8}{7}x - \frac{8}{4}$$

- A.  $(-\infty, a]$ , where  $a \in [-0.61, 2.39]$
  - B.  $[a, \infty)$ , where  $a \in [-0.61, 8.39]$
  - C.  $[a, \infty)$ , where  $a \in [-6.39, 0.61]$
  - D.  $(-\infty, a]$ , where  $a \in [-1.39, 0.61]$
  - 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.

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

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-5.5, -2.5]$  and  $b \in [-3.33, 2.67]$
- B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.67, 2.33]$  and  $b \in [3.5, 5.5]$
- C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-1.67, 5.33]$  and  $b \in [2.5, 6.5]$
- D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-4.5, -3.5]$  and  $b \in [-2.33, 2.67]$

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

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

$$-9x - 8 \leq 5x - 9$$

- A.  $[a, \infty)$ , where  $a \in [0.05, 0.66]$   
B.  $(-\infty, a]$ , where  $a \in [0.03, 0.15]$   
C.  $[a, \infty)$ , where  $a \in [-0.25, -0.02]$   
D.  $(-\infty, a]$ , where  $a \in [-0.18, 0.05]$   
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 more than 9 units from the number 1.

- A.  $(-8, 10)$   
B.  $(-\infty, -8] \cup [10, \infty)$   
C.  $[-8, 10]$   
D.  $(-\infty, -8) \cup (10, \infty)$   
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.

$$\frac{9}{8} + \frac{3}{4}x > \frac{5}{9}x + \frac{7}{3}$$

- A.  $(-\infty, a)$ , where  $a \in [-7.21, -5.21]$   
B.  $(-\infty, a)$ , where  $a \in [5.21, 9.21]$

- C.  $(a, \infty)$ , where  $a \in [6.21, 7.21]$
  - D.  $(a, \infty)$ , where  $a \in [-8.21, -5.21]$
  - E. None of the above.
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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 less than 4 units from the number 6.

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

$$-4 + 4x \leq \frac{16x + 9}{3} < -8 - 3x$$

- A.  $[a, b)$ , where  $a \in [4.25, 7.25]$  and  $b \in [0.6, 2.3]$
  - B.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [4.25, 6.25]$  and  $b \in [0.2, 1.9]$
  - C.  $(a, b]$ , where  $a \in [3.25, 8.25]$  and  $b \in [0.7, 4.2]$
  - D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [3.25, 6.25]$  and  $b \in [1.32, 2.32]$
  - 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.

$$-4 + 8x > 11x \text{ or } 8 + 6x < 9x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-3.5, -2.2]$  and  $b \in [-0.8, 1.4]$
  - B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.6, 1.4]$  and  $b \in [1.4, 3.9]$
  - C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.3, 0]$  and  $b \in [2, 4.4]$
  - D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.9, -1.9]$  and  $b \in [1.3, 2.6]$
  - 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.

$$-7x - 3 \leq -4x + 9$$

- A.  $[a, \infty)$ , where  $a \in [4, 11]$
  - B.  $(-\infty, a]$ , where  $a \in [4, 5]$
  - C.  $(-\infty, a]$ , where  $a \in [-9, 1]$
  - D.  $[a, \infty)$ , where  $a \in [-9, -1]$
  - E. None of the above.
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