

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

$$-9x + 4 < 6x - 10$$

- A.  $(a, \infty)$ , where  $a \in [-2.03, 0.6]$
- B.  $(-\infty, a)$ , where  $a \in [0.8, 1.4]$
- C.  $(a, \infty)$ , where  $a \in [-0.67, 1.5]$
- D.  $(-\infty, a)$ , where  $a \in [-2.7, 0.3]$
- E. None of the above.

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

No more than 3 units from the number  $-5$ .

- A.  $(-8, -2)$
- B.  $(-\infty, -8) \cup (-2, \infty)$
- C.  $(-\infty, -8] \cup [-2, \infty)$
- D.  $[-8, -2]$
- E. None of the above

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

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

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-6.2, -2.9]$  and  $b \in [2.1, 2.7]$
- B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6, -3.5]$  and  $b \in [-3.67, 3.33]$
- C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-3.5, -1.6]$  and  $b \in [3.5, 5.2]$
- D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.8, -1.3]$  and  $b \in [2.5, 6.5]$
- E.  $(-\infty, \infty)$

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

$$-7x + 10 \geq 8x + 8$$

- A.  $[a, \infty)$ , where  $a \in [0.06, 0.5]$
  - B.  $(-\infty, a]$ , where  $a \in [-0.4, -0.03]$
  - C.  $(-\infty, a]$ , where  $a \in [0.02, 0.49]$
  - D.  $[a, \infty)$ , where  $a \in [-0.3, 0.11]$
  - 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.

More than 5 units from the number 7.

- A.  $(-\infty, 2] \cup [12, \infty)$
  - B.  $(2, 12)$
  - C.  $[2, 12]$
  - D.  $(-\infty, 2) \cup (12, \infty)$
  - 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.

$$\frac{-9}{2} - \frac{5}{4}x \geq \frac{-4}{7}x + \frac{7}{6}$$

- A.  $[a, \infty)$ , where  $a \in [4.35, 11.35]$
- B.  $(-\infty, a]$ , where  $a \in [6.35, 9.35]$
- C.  $(-\infty, a]$ , where  $a \in [-11.35, -6.35]$

D.  $[a, \infty)$ , where  $a \in [-9.35, -5.35]$

E. None of the above.

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

$$-4 - 7x \leq \frac{-61x - 5}{9} < 5 - 7x$$

A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [14.5, 21.5]$  and  $b \in [-28, -21]$

B.  $[a, b)$ , where  $a \in [15.5, 19.5]$  and  $b \in [-27, -22]$

C.  $(a, b]$ , where  $a \in [14.5, 18.5]$  and  $b \in [-29, -17]$

D.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [13.5, 19.5]$  and  $b \in [-27, -19]$

E. None of the above.

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

$$3 - 8x < \frac{-46x + 7}{6} \leq 4 - 8x$$

A.  $(a, b]$ , where  $a \in [-8.5, -3.5]$  and  $b \in [-14.5, -4.5]$

B.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-7.5, -0.5]$  and  $b \in [-11.5, -2.5]$

C.  $[a, b)$ , where  $a \in [-5.5, -0.5]$  and  $b \in [-9.5, -3.5]$

D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-8.5, -1.5]$  and  $b \in [-9.5, -4.5]$

E. None of the above.

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

$$-7 + 7x > 8x \text{ or } -5 + 9x < 10x$$

A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [4, 8]$  and  $b \in [3, 10]$

- B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-10, -3]$  and  $b \in [-6, 0]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-8, -6]$  and  $b \in [-8, 6]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [4, 9]$  and  $b \in [7, 9]$
  - 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.

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

- A.  $(a, \infty)$ , where  $a \in [-24, -20]$
  - B.  $(a, \infty)$ , where  $a \in [20, 25]$
  - C.  $(-\infty, a)$ , where  $a \in [21, 23]$
  - D.  $(-\infty, a)$ , where  $a \in [-21, -18]$
  - E. None of the above.
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