

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

$$4 - 9x < \frac{-30x - 9}{7} \leq 6 - 5x$$

- A.  $(a, b]$ , where  $a \in [-4.12, 0.88]$  and  $b \in [-12.2, -3.2]$
  - B.  $[a, b)$ , where  $a \in [-1.71, -0.6]$  and  $b \in [-13.2, -9.2]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-2.12, -0.12]$  and  $b \in [-17.2, -9.2]$
  - D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-4, -0.6]$  and  $b \in [-11.2, -6.2]$
  - 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.

$$3x + 8 \geq 8x - 5$$

- A.  $(-\infty, a]$ , where  $a \in [2.6, 10.6]$
  - B.  $[a, \infty)$ , where  $a \in [-8.6, -1.6]$
  - C.  $[a, \infty)$ , where  $a \in [1.6, 9.6]$
  - D.  $(-\infty, a]$ , where  $a \in [-2.6, -0.6]$
  - 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.

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

- A.  $(-\infty, a]$ , where  $a \in [-1.28, 4.72]$
- B.  $(-\infty, a]$ , where  $a \in [-3.72, 0.28]$
- C.  $[a, \infty)$ , where  $a \in [2.72, 4.72]$
- D.  $[a, \infty)$ , where  $a \in [-3.72, 0.28]$

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.

Less than 2 units from the number 8.

- A.  $(-\infty, 6) \cup (10, \infty)$
  - B.  $[6, 10]$
  - C.  $(6, 10)$
  - D.  $(-\infty, 6] \cup [10, \infty)$
  - 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.

$$-9 + 6x > 7x \text{ or } -6 + 3x < 5x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-12, -5]$  and  $b \in [-3, 2]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-9, -4]$  and  $b \in [-6, -1]$
  - C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-1, 5]$  and  $b \in [9, 12]$
  - D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [3, 7]$  and  $b \in [8, 14]$
  - E.  $(-\infty, \infty)$
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6. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-7x - 9 > 4x + 5$$

- A.  $(-\infty, a)$ , where  $a \in [-4.27, -0.27]$
- B.  $(-\infty, a)$ , where  $a \in [1.27, 5.27]$
- C.  $(a, \infty)$ , where  $a \in [-2.2, 0.5]$

- D.  $(a, \infty)$ , where  $a \in [0.2, 2.8]$
- 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.

$$\frac{-3}{8} - \frac{7}{6}x \leq \frac{-5}{5}x - \frac{10}{2}$$

- A.  $[a, \infty)$ , where  $a \in [-27.75, -25.75]$
- B.  $(-\infty, a]$ , where  $a \in [26.75, 28.75]$
- C.  $(-\infty, a]$ , where  $a \in [-31.75, -23.75]$
- D.  $[a, \infty)$ , where  $a \in [25.75, 28.75]$
- E. None of the above.

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

Less than 4 units from the number 3.

- A.  $[1, 7]$
- B.  $(-\infty, 1) \cup (7, \infty)$
- C.  $(1, 7)$
- D.  $(-\infty, 1] \cup [7, \infty)$
- 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.

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

- A.  $(a, b]$ , where  $a \in [-2.6, -0.5]$  and  $b \in [-0.6, 4.4]$

- B.  $[a, b)$ , where  $a \in [-5.12, -0.12]$  and  $b \in [0.4, 5.4]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-2.4, -0.3]$  and  $b \in [1.4, 5.4]$
  - D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-1.9, -0.1]$  and  $b \in [-2.6, 4.4]$
  - 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.

$$9 - 3x > 6x \text{ or } 4 + 4x < 5x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [1, 3]$  and  $b \in [4, 6]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-5, 0]$  and  $b \in [-4, 3]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6, -1]$  and  $b \in [-1, 0]$
  - D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [1, 4]$  and  $b \in [4, 6]$
  - E.  $(-\infty, \infty)$
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