

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

$$-8 + 7x > 8x \text{ or } -6 + 7x < 9x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-9, -7]$  and  $b \in [-3, 0]$
  - B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [3, 4]$  and  $b \in [7, 10]$
  - C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [2, 8]$  and  $b \in [8, 11]$
  - D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-10, -7]$  and  $b \in [-6, -2]$
  - 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.

No more than 10 units from the number 8.

- A.  $(-\infty, 2] \cup [18, \infty)$
  - B.  $[2, 18]$
  - C.  $(2, 18)$
  - D.  $(-\infty, 2) \cup (18, \infty)$
  - 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.

$$-3x + 4 \leq 6x + 9$$

- A.  $[a, \infty)$ , where  $a \in [-1.69, -0.39]$
- B.  $(-\infty, a]$ , where  $a \in [-2.2, -0.2]$
- C.  $(-\infty, a]$ , where  $a \in [0.1, 1.9]$
- D.  $[a, \infty)$ , where  $a \in [0.35, 0.95]$
- 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.

No more than 6 units from the number  $-6$ .

- A.  $(-\infty, -12) \cup (0, \infty)$
- B.  $[-12, 0]$
- C.  $(-\infty, -12] \cup [0, \infty)$
- D.  $(-12, 0)$
- 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.

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

- A.  $(-\infty, a]$ , where  $a \in [-4, 0]$
- B.  $(-\infty, a]$ , where  $a \in [2, 5]$
- C.  $[a, \infty)$ , where  $a \in [3, 5]$
- D.  $[a, \infty)$ , where  $a \in [-3, 0]$
- 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.

$$-5 + 8x > 9x \text{ or } 3 + 9x < 12x$$

- A.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-10, -4]$  and  $b \in [1, 3]$
- B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-1, 4]$  and  $b \in [5, 6]$
- C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-6, -4]$  and  $b \in [-3, 3]$

- D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2, 0]$  and  $b \in [5, 6]$   
E.  $(-\infty, \infty)$
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7. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$\frac{-9}{7} - \frac{5}{8}x < \frac{4}{6}x + \frac{5}{3}$$

- A.  $(a, \infty)$ , where  $a \in [-0.71, 3.29]$   
B.  $(a, \infty)$ , where  $a \in [-5.29, -1.29]$   
C.  $(-\infty, a)$ , where  $a \in [0.29, 5.29]$   
D.  $(-\infty, a)$ , where  $a \in [-3.29, -0.29]$   
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.

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

- A.  $(-\infty, a]$ , where  $a \in [0.1, 2.3]$   
B.  $[a, \infty)$ , where  $a \in [-0.08, 8.92]$   
C.  $[a, \infty)$ , where  $a \in [-5.92, 0.08]$   
D.  $(-\infty, a]$ , where  $a \in [-2, 0.8]$   
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.

$$-7 + 6x \leq \frac{56x + 6}{9} < -4 + 6x$$

- A.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-36.5, -32.5]$  and  $b \in [-25, -20]$

- B.  $(a, b]$ , where  $a \in [-34.5, -30.5]$  and  $b \in [-25, -20]$
  - C.  $[a, b)$ , where  $a \in [-38.5, -33.5]$  and  $b \in [-21, -18]$
  - D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-37.5, -33.5]$  and  $b \in [-22, -17]$
  - 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.

$$-8 - 7x \leq \frac{-19x + 8}{3} < 8 - 9x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-16, -12]$  and  $b \in [-1, 7]$
  - B.  $[a, b)$ , where  $a \in [-16, -15]$  and  $b \in [1, 3]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-21, -14]$  and  $b \in [0, 3]$
  - D.  $(a, b]$ , where  $a \in [-16, -15]$  and  $b \in [1.3, 4.5]$
  - E. None of the above.
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