

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

$$-9 + 5x < \frac{46x + 3}{7} \leq 3 + 6x$$

- A.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-10, -3]$  and  $b \in [-0.5, 6.5]$   
B.  $[a, b)$ , where  $a \in [-7, 0]$  and  $b \in [3.5, 8.5]$   
C.  $(a, b]$ , where  $a \in [-7, -3]$  and  $b \in [1.5, 11.5]$   
D.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-10, -3]$  and  $b \in [4.5, 5.5]$   
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.

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

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-3.59, -2.22]$  and  $b \in [0.3, 2.3]$   
B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.4, 0.5]$  and  $b \in [2.9, 3.5]$   
C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-3.8, -2.7]$  and  $b \in [1.66, 2.69]$   
D.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-2.78, -1.68]$  and  $b \in [2.4, 3.3]$   
E.  $(-\infty, \infty)$
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3. Solve the linear inequality below. Then, choose the constant and interval combination that describes the solution set.

$$-5 - 6x < \frac{-34x + 7}{6} \leq -5 - 9x$$

- A.  $[a, b)$ , where  $a \in [-18.5, -13.5]$  and  $b \in [-1.85, 0.15]$   
B.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-19.5, -16.5]$  and  $b \in [-5.85, -0.85]$   
C.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-19.5, -13.5]$  and  $b \in [-4.85, 1.15]$   
D.  $(a, b]$ , where  $a \in [-24.5, -15.5]$  and  $b \in [-1.85, -0.85]$

E. None of the above.

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

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

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-11, -4]$  and  $b \in [-10, -2]$
- B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [4, 10]$  and  $b \in [7, 11]$
- C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [4, 14]$  and  $b \in [9, 12]$
- D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-13, -8]$  and  $b \in [-11, -4]$
- E.  $(-\infty, \infty)$

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

$$\frac{-7}{4} + \frac{9}{6}x > \frac{10}{5}x + \frac{6}{3}$$

- A.  $(-\infty, a)$ , where  $a \in [-9.5, -5.5]$
- B.  $(-\infty, a)$ , where  $a \in [5.5, 11.5]$
- C.  $(a, \infty)$ , where  $a \in [-9.5, -3.5]$
- D.  $(a, \infty)$ , where  $a \in [5.5, 9.5]$
- E. None of the above.

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

$$6x - 7 < 10x - 8$$

- A.  $(-\infty, a)$ , where  $a \in [-0.86, 0.03]$
- B.  $(a, \infty)$ , where  $a \in [0.07, 0.81]$

- C.  $(-\infty, a)$ , where  $a \in [-0.04, 0.49]$
- D.  $(a, \infty)$ , where  $a \in [-1, 0.11]$
- E. None of the above.

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

No less than 2 units from the number  $-4$ .

- A.  $(-\infty, -6) \cup (-2, \infty)$
- B.  $(-\infty, -6] \cup [-2, \infty)$
- C.  $[-6, -2]$
- D.  $(-6, -2)$
- E. None of the above

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

Less than 10 units from the number 2.

- A.  $(-\infty, -8] \cup [12, \infty)$
- B.  $(-8, 12)$
- C.  $[-8, 12]$
- D.  $(-\infty, -8) \cup (12, \infty)$
- E. None of the above

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

$$\frac{-4}{9} - \frac{10}{8}x > \frac{-7}{7}x + \frac{8}{3}$$

- A.  $(a, \infty)$ , where  $a \in [12.44, 14.44]$
- B.  $(-\infty, a)$ , where  $a \in [-15.44, -10.44]$
- C.  $(-\infty, a)$ , where  $a \in [12.44, 16.44]$
- D.  $(a, \infty)$ , where  $a \in [-16.44, -11.44]$
- 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.

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

- A.  $[a, \infty)$ , where  $a \in [-0.6, -0.2]$
  - B.  $(-\infty, a]$ , where  $a \in [0.44, 0.62]$
  - C.  $[a, \infty)$ , where  $a \in [-0.2, 2.8]$
  - D.  $(-\infty, a]$ , where  $a \in [-2.16, -0.23]$
  - E. None of the above.
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