

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

More than 6 units from the number 1.

- A.  $(-\infty, -5) \cup (7, \infty)$
- B.  $(-\infty, -5] \cup [7, \infty)$
- C.  $[-5, 7]$
- D.  $(-5, 7)$
- 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.

$$\frac{4}{9} - \frac{9}{6}x \geq \frac{3}{3}x + \frac{6}{2}$$

- A.  $(-\infty, a]$ , where  $a \in [-3.02, -0.02]$
- B.  $[a, \infty)$ , where  $a \in [-3.02, 0.98]$
- C.  $(-\infty, a]$ , where  $a \in [0.02, 5.02]$
- D.  $[a, \infty)$ , where  $a \in [1.02, 4.02]$
- 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.

$$-7 + 7x > 9x \text{ or } -3 + 6x < 8x$$

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [1.5, 7.5]$  and  $b \in [1.5, 8.5]$
- B.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-3.5, -2.5]$  and  $b \in [-5.5, 0.5]$
- C.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [0.5, 3.5]$  and  $b \in [2.5, 10.5]$
- D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-5.5, -1.5]$  and  $b \in [-3.5, 1.5]$

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.

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

- A.  $(-\infty, a]$ , where  $a \in [-1.33, -0.51]$   
B.  $[a, \infty)$ , where  $a \in [-1.94, -0.76]$   
C.  $(-\infty, a]$ , where  $a \in [-0.13, 1.4]$   
D.  $[a, \infty)$ , where  $a \in [0.24, 1.48]$   
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.

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

- A.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-4, -2.4]$  and  $b \in [1.33, 3.33]$   
B.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-4.48, -2.89]$  and  $b \in [1.2, 3.2]$   
C.  $(-\infty, a] \cup [b, \infty)$ , where  $a \in [-3, 0.8]$  and  $b \in [2.5, 6.5]$   
D.  $(-\infty, a) \cup (b, \infty)$ , where  $a \in [-2.81, -1.53]$  and  $b \in [2.6, 5.3]$   
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.

$$\frac{3}{4} + \frac{7}{5}x > \frac{8}{6}x + \frac{10}{9}$$

- A.  $(-\infty, a)$ , where  $a \in [3.42, 8.42]$   
B.  $(a, \infty)$ , where  $a \in [4.42, 6.42]$

- C.  $(-\infty, a)$ , where  $a \in [-8.42, -4.42]$
  - D.  $(a, \infty)$ , where  $a \in [-6.42, -4.42]$
  - 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.

$$5 + 4x \leq \frac{22x + 5}{4} < 8 + 5x$$

- A.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-0.5, 4.5]$  and  $b \in [7.5, 16.5]$
  - B.  $[a, b)$ , where  $a \in [1.5, 6.5]$  and  $b \in [12.5, 14.5]$
  - C.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-1.5, 4.5]$  and  $b \in [11.5, 16.5]$
  - D.  $(a, b]$ , where  $a \in [1.5, 3.5]$  and  $b \in [9.5, 16.5]$
  - 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.

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

- A.  $[a, \infty)$ , where  $a \in [-2.28, -0.92]$
  - B.  $(-\infty, a]$ , where  $a \in [0.44, 3.44]$
  - C.  $(-\infty, a]$ , where  $a \in [-8.44, 0.56]$
  - D.  $[a, \infty)$ , where  $a \in [0.5, 1.88]$
  - 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.

$$9 + 3x \leq \frac{68x + 5}{9} < 7 + 7x$$

- A.  $[a, b)$ , where  $a \in [-2.1, -1.2]$  and  $b \in [-13.6, -7.6]$
  - B.  $(a, b]$ , where  $a \in [-2.85, 0.15]$  and  $b \in [-12.6, -10.6]$
  - C.  $(-\infty, a] \cup (b, \infty)$ , where  $a \in [-2.85, 0.15]$  and  $b \in [-14.6, -10.6]$
  - D.  $(-\infty, a) \cup [b, \infty)$ , where  $a \in [-4.85, -0.85]$  and  $b \in [-11.6, -9.6]$
  - E. None of the above.
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10. Using an interval or intervals, describe all the  $x$ -values within or including a distance of the given values.

Less than 5 units from the number  $-6$ .

- A.  $[-11, -1]$
  - B.  $(-\infty, -11) \cup (-1, \infty)$
  - C.  $(-\infty, -11] \cup [-1, \infty)$
  - D.  $(-11, -1)$
  - E. None of the above
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