

A.REI.B.3: Solving Linear Inequalities 1a

1 What is the solution to $2h + 8 > 3h - 6$

- 1) $h < 14$
- 2) $h < \frac{14}{5}$
- 3) $h > 14$
- 4) $h > \frac{14}{5}$

2 What is the solution of $4x - 30 \geq -3x + 12$?

- 1) $x \geq 6$
- 2) $x \leq 6$
- 3) $x \geq -6$
- 4) $x \leq -6$

3 What is the solution of the inequality $-6x - 17 \geq 8x + 25$?

- 1) $x \geq 3$
- 2) $x \leq 3$
- 3) $x \geq -3$
- 4) $x \leq -3$

4 When $3x + 2 \leq 5(x - 4)$ is solved for x , the solution is

- 1) $x \leq 3$
- 2) $x \geq 3$
- 3) $x \leq -11$
- 4) $x \geq 11$

5 What is the solution of $3(2m - 1) \leq 4m + 7$?

- 1) $m \leq 5$
- 2) $m \geq 5$
- 3) $m \leq 4$
- 4) $m \geq 4$

6 The inequality $7 - \frac{2}{3}x < x - 8$ is equivalent to

- 1) $x > 9$
- 2) $x > -\frac{3}{5}$
- 3) $x < 9$
- 4) $x < -\frac{3}{5}$

7 The inequality $\frac{1}{2}x + 3 < 2x - 6$ is equivalent to

- 1) $x < -\frac{5}{6}$
- 2) $x > -\frac{5}{6}$
- 3) $x < 6$
- 4) $x > 6$

8 What is the solution to the inequality $2 + \frac{4}{9}x \geq 4 + x$?

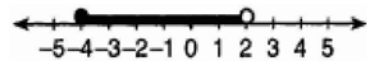
- 1) $x \leq -\frac{18}{5}$
- 2) $x \geq -\frac{18}{5}$
- 3) $x \leq \frac{54}{5}$
- 4) $x \geq \frac{54}{5}$

9 Which inequality is shown on the accompanying graph?



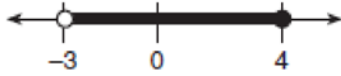
- 1) $x < -1$
- 2) $x \leq -1$
- 3) $x > -1$
- 4) $x \geq -1$

10 Which inequality is represented in the graph below?



- 1) $-4 < x < 2$
- 2) $-4 \leq x < 2$
- 3) $-4 < x \leq 2$
- 4) $-4 \leq x \leq 2$

11 Which inequality is represented in the accompanying graph?



- 1) $-3 \leq x < 4$
- 2) $-3 \leq x \leq 4$
- 3) $-3 < x < 4$
- 4) $-3 < x \leq 4$

12 Which graph best represents the solution set for the inequality $x > \sqrt{2}$?

- 1)
- 2)
- 3)
- 4)

13 Which graph represents the solution set of $2x - 5 < 3$?

- 1)
- 2)
- 3)
- 4)

14 Which graph represents the solution set for $2x - 4 \leq 8$ and $x + 5 \geq 7$?

- 1)
- 2)
- 3)
- 4)

15 In order to be admitted for a certain ride at an amusement park, a child must be greater than or equal to 36 inches tall and less than 48 inches tall. Which graph represents these conditions?

- 1)
- 2)
- 3)
- 4)

16 On June 17, the temperature in New York City ranged from 90° to 99° , while the temperature in Niagara Falls ranged from 60° to 69° . The difference in the temperatures in these two cities must be between

- 1) 20° and 30°
- 2) 20° and 40°
- 3) 25° and 35°
- 4) 30° and 40°

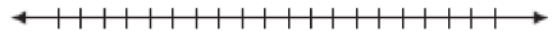
17 Solve the inequality $-5(x - 7) < 15$ algebraically for x .

18 Solve the inequality below:
 $1.8 - 0.4y \geq 2.2 - 2y$

19 Solve algebraically for x : $2(x - 4) \geq \frac{1}{2}(5 - 3x)$

20 Given that $a > b$, solve for x in terms of a and b :
 $b(x - 3) \geq ax + 7b$

21 The manufacturer of Ron's car recommends that the tire pressure be at least 26 pounds per square inch and less than 35 pounds per square inch. On the accompanying number line, graph the inequality that represents the recommended tire pressure.



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Answer Section

1 ANS: 1

$$2h + 8 > 3h - 6$$

$$14 > h$$

$$h < 14$$

REF: 081607ai

2 ANS: 1

$$4x - 30 \geq -3x + 12$$

$$7x \geq 42$$

$$x \geq 6$$

REF: 061406ia

3 ANS: 4

$$-6x - 17 \geq 8x + 25$$

$$-42 \geq 14x$$

$$-3 \geq x$$

REF: 081121ia

4 ANS: 4

$$3x + 2 \leq 5x - 20$$

$$22 \leq 2x$$

$$11 \leq x$$

REF: 061609ai

5 ANS: 1

$$3(2m - 1) \leq 4m + 7$$

$$6m - 3 \leq 4m + 7$$

$$2m \leq 10$$

$$m \leq 5$$

REF: 081002ia

6 ANS: 1

$$7 - \frac{2}{3}x < x - 8$$

$$15 < \frac{5}{3}x$$

$$9 < x$$

REF: 011507ai

7 ANS: 4

$$\frac{1}{2}x + 3 < 2x - 6$$

$$9 < \frac{3x}{2}$$

$$6 < x$$

REF: 010425a

8 ANS: 1

$$2 + \frac{4}{9}x \geq 4 + x$$

$$-2 \geq \frac{5}{9}x$$

$$x \leq -\frac{18}{5}$$

REF: 081711ai

9 ANS: 4

$$10 \times 8 + \frac{1}{2}\pi \times 4^2 = 80 + 8\pi$$

REF: 080815a

10 ANS: 2

REF: 060001a

11 ANS: 4

REF: 080411a

12 ANS: 2

REF: 060616a

13 ANS: 1

REF: 011418ia

14 ANS: 2

$$2x - 4 \leq 8$$

$$2x \leq 12 \quad x + 5 \geq 7$$

$$x \leq 6 \quad x \geq 2$$

REF: 010312a

15 ANS: 1

REF: 010610a

16 ANS: 2

The greatest difference occurs when NYC's temperature is 99° and Niagara Falls' temperature is 60° . The maximum difference is less than 40° . The least difference occurs when NYC's temperature is 90° and Niagara Falls' temperature is 69° . The minimum difference is greater than 20° .

REF: 089910a

17 ANS:

$$-5(x - 7) < 15$$

$$x - 7 > -3$$

$$x > 4$$

REF: 061331ia

18 ANS:

$$1.8 - 0.4y \geq 2.2 - 2y$$

$$1.6y \geq 0.4$$

$$y \geq 0.25$$

REF: 011727ai

19 ANS:

$$2(x - 4) \geq \frac{1}{2}(5 - 3x)$$

$$4(x - 4) \geq 5 - 3x$$

$$4x - 16 \geq 5 - 3x$$

$$7x \geq 21$$

$$x \geq 3$$

REF: 011234ia

20 ANS:

$$b(x - 3) \geq ax + 7b$$

$$bx - 3b \geq ax + 7b$$

$$bx - ax \geq 10b$$

$$x(b - a) \geq 10b$$

$$x \leq \frac{10b}{b - a}$$

REF: 011631ai

21 ANS:



REF: 060532a