

Practice 3

Linear Inequalities and Absolute Value Inequalities

Solve the linear inequality. Other than \emptyset , use interval notation to express the solution set and graph the solution set on a number line.

1) $3x + 5 < 23$ 1) _____

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

2) $-6x - 3 \geq -7x - 10$ 2) _____

- A) $(-\infty, -7)$ B) $(-\infty, -7]$ C) $(-13, \infty)$ D) $[-7, \infty)$

3) $12x + 2 > 2(5x - 5)$ 3) _____

- A) $(-4, \infty)$ B) $(-6, \infty)$ C) $(-\infty, -6)$ D) $[-6, \infty)$

4) $-14x + 12 \leq -2(6x - 10)$ 4) _____

- A) $[-4, \infty)$ B) $(-\infty, -4)$ C) $(-\infty, -4]$ D) $(-4, \infty)$

5) $\frac{x}{5} - \frac{4}{5} \leq \frac{x}{3} + 3$ 5) _____

- A) $\left[-\infty, -\frac{57}{2}\right]$ B) $\left[-\frac{57}{2}, \infty\right)$ C) $\left(-\infty, -\frac{57}{2}\right)$ D) $\left[-\frac{57}{2}, \infty\right)$

Use interval notation to represent all values of x satisfying the given conditions.

6) $y = 4 - 2(1 - x)$ and y is at most -4. 6) _____

- A) $[-3, \infty)$ B) $(-\infty, -2]$ C) $(-\infty, -3)$ D) $(-\infty, -3]$

7) $y = \frac{x - 4}{9} - \frac{x - 5}{12} - \frac{1}{36}$ and y is at least 0. 7) _____

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

Solve the problem.

8) Claire has received scores of 85, 88, 87, and 80 on her algebra tests. What score must she receive on the fifth test to have an overall test score average of at least 82? 8) _____

- A) 71 or greater B) 68 or greater C) 69 or greater D) 70 or greater

- 9) A certain store has a fax machine available for use by its customers. The store charges \$1.80 to send the first page and \$0.45 for each subsequent page. Use an inequality to find the number of pages that can be faxed for \$6.30. 9) _____
- A) 46 pages or fewer
B) 14 pages or fewer
C) 11 pages or fewer
D) 4 pages or fewer

Solve the linear inequality. Other than \emptyset , use interval notation to express the solution set and graph the solution set on a number line.

10) $5(4x + 2) - 4x < 4(3 + 4x) - 6$ 10) _____

- A) $(2, \infty)$ B) $(\infty, 2)$ C) (∞, ∞) D) \emptyset

11) $-6x \leq -6(x - 4)$ 11) _____

- A) $[-4, \infty)$ B) \emptyset C) (∞, ∞) D) $(\infty, -4]$

Solve the absolute value inequality. Other than \emptyset , use interval notation to express the solution set and graph the solution set on a number line.

12) $|x| < 4$ 12) _____

- A) $(-\infty, -4] \cup [4, \infty)$ B) $(-\infty, -4) \cup (4, \infty)$ C) $[-4, 4]$ D) $(-4, 4)$

13) $|x - 4| < 0$ 13) _____

- A) $(-4, \infty)$ B) $(-4, 4)$ C) $(-\infty, 4)$ D) \emptyset

14) $|x - 5| \leq 0$ 14) _____

- A) $(-\infty, 5)$ B) $\{5\}$ C) $\{-5\}$ D) \emptyset

15) $|x + 2| + 5 \leq 9$ 15) _____

- A) $[-6, 2]$ B) $[-6, 9]$ C) $(-\infty, -6] \cup [2, \infty)$ D) $(-6, 2)$

Answer Key

Testname: 3_LINEAR INEQUALITIES AND ABSOLUTE VALUE INEQUALITIES

- 1) B
- 2) D
- 3) B
- 4) A
- 5) B
- 6) D
- 7) B
- 8) D
- 9) C
- 10) D
- 11) C
- 12) D
- 13) D
- 14) B
- 15) A