

1. Use substitution to determine which value is the solution to $-8x + 9 = 49$.
- A) $x = -6$ C) $x = -5$
 B) $x = -7$ D) $x = 13$
2. Solve the equation:
 $6 - 3(-2 - 4x) = 2[3(x - 4) + 7]$
- A) $x = \frac{11}{3}$ C) $x = 4$
 B) $x = -\frac{11}{3}$ D) $x = -\frac{29}{6}$
3. Solve the equation:
 $0.4(x - 3) + 0.5 = 1 - 0.5(6 - 2x) - 0.5$
- A) $x = 0.3$ C) $x = 0$
 B) $x = 3$ D) No solution
4. The sum of two numbers is 58. The larger number is 3 less than 3 times the smaller number. Find the smaller number.
- A) 171 C) $\frac{249}{4}$
 B) $\frac{87}{2}$ D) $\frac{61}{4}$
5. After his annual review, Miguel's salary was increased from \$39,000 per year to \$42,000. What percent increase does this represent? Round your answer to the nearest tenth of a percent.
- A) 92.9% C) 7.1%
 B) 7.7% D) 3000%
6. Two cars are 188 miles apart and travel toward each other on the same road. They meet in 2 hours. One car travels 4 mph faster than the other. What is the average speed of each car?
- A) 43 mph; 47 mph C) 44 mph; 48 mph
 B) 42 mph; 46 mph D) 45 mph; 49 mph
7. The plans for a rectangular deck call for the width to be 8 feet less than the length. Sam wants the deck to have an overall perimeter of 48 feet. What should the length of the deck be?
- A) 8 feet C) 24 feet
 B) 28 feet D) 16 feet
8. Angles A, B, and C are the angles in a triangle. Angle B is 2 times as big as angle A, and angle C is 48° more than angle A. Find the measure of angle A in degrees.
- A) 33° C) 66°
 B) 10.5° D) 81°

9. Two angles are complementary. The larger of the two is 39° more than twice the smaller. Find the 2 angles.

- A) 47° and 133° C) 17° and 73°
 B) 43° and 47° D) 51° and 39°

10. Solve for the indicated variable.

$$2x + 3y = 8 \quad \text{for } y$$

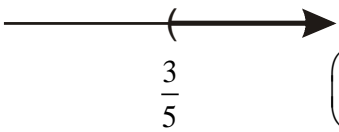
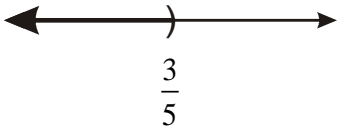
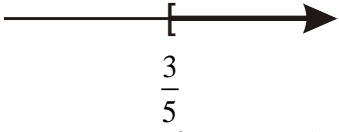
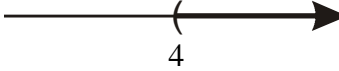
- A) $y = -\frac{2}{3}x + \frac{8}{3}$ C) $y = \frac{2}{3}x + \frac{8}{3}$
 B) $y = -\frac{2}{3}x + 8$ D) $y = \frac{2}{3}x + 8$

11. Solve the inequality. Write the solution set in interval notation. $4(x - 3) - 3x \geq -9$

- A) $(-\infty, 3]$ C) $[-6, \infty)$
 B) $(3, \infty)$ D) $[3, \infty)$

12. Solve the inequality. Graph the solution set and write the solution set in interval notation.

$$5y + 7 > 10$$

- A)  $\left(\frac{3}{5}, \infty\right)$
 B)  $\left(-\infty, \frac{3}{5}\right)$
 C)  $\left[\frac{3}{5}, \infty\right)$
 D)  $(4, \infty)$

13. Solve the inequality. Write the solution set in interval notation. $-5 - 5z \leq -3$

- A) $\left(-\infty, -\frac{2}{5}\right]$ C) $\left[-\frac{2}{5}, \infty\right)$
 B) $\left(-\infty, -\frac{2}{5}\right)$ D) $\left(-\frac{2}{5}, \infty\right)$

14. Solve the inequality. Write the solution set in interval notation.

$$\frac{2z + 8}{-3} \geq z - 5$$

- A) $\left(-\infty, \frac{7}{5}\right]$ C) $\left[\frac{7}{5}, \infty\right)$
 B) $\left(-\infty, \frac{7}{5}\right)$ D) $\left[\frac{14}{5}, \infty\right)$

15. Given $A = \{22, -20, -21, -13, 8, 13\}$ and $B = \{-6, -17, -21, 8\}$, list the elements of $A \cap B$.

- A) $\{22, -20, -21, -13, 8, 13, -6, -17\}$
 B) $\{-21\}$
 C) $\{-21, 8\}$
 D) $\{\}$


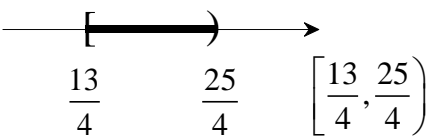
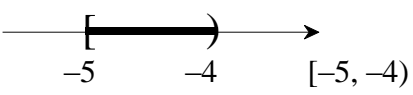

16. Solve the inequality. Write your answer in interval notation.

$$14 > 3x \quad \text{and} \quad -1 + 2x \geq -4$$

- A) $\left(-\infty, -\frac{3}{2}\right) \cup \left[\frac{14}{3}, \infty\right)$
 B) $\left[-\frac{3}{2}, \frac{14}{3}\right)$
 C) $\left[-\frac{14}{3}, \frac{3}{2}\right)$
 D) $\{ \}$

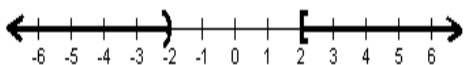
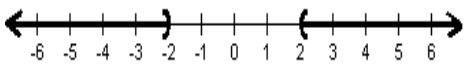
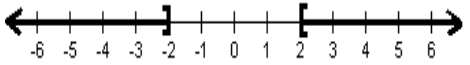
17. Solve the inequality and graph the solution. Write the answer in interval notation.

$$17 \leq 8x + 9 < 41$$

- A)  $[1, 4)$
 B)  $\left[\frac{13}{4}, \frac{25}{4}\right)$
 C)  $[-5, -4)$
 D)  $\{ \}$

18. Solve the inequality and graph the solution. Write the answer in interval notation.

$$6q - 3 \geq 9 \quad \text{or} \quad 6q < -12$$

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

19. Solve the absolute value equation:

$$|8z - 4| = 6$$

- A) $\left\{\frac{10}{3}\right\}$ C) $\{6, -8\}$
 B) $\left\{-\frac{7}{3}\right\}$ D) $\left\{\frac{5}{4}, -\frac{1}{4}\right\}$

20. Solve the absolute value equation:

$$|8x - 4| - 1 = -1$$

- A) $\left\{\frac{1}{2}, -\frac{1}{2}\right\}$ C) $\left\{\frac{1}{2}\right\}$
 B) $\{8, -1\}$ D) $\{ \}$

21. Solve the absolute value equation:

$$|2v| = |-16 - 18v|$$

- A) $\{-1\}$ C) $\left\{\frac{7}{10}, 0\right\}$
B) $\{0, 34\}$ D) $\left\{-1, -\frac{4}{5}\right\}$

22. Solve the absolute value inequality. Write the solution in interval notation.

$$|x + 1| < 17$$

- A) $(-18, 16)$
B) $(-\infty, -18) \cup (16, \infty)$
C) $(-16, 18)$
D) $(-16, 16)$

23. Solve the absolute value inequality. Write the solution in interval notation.

$$-24 \geq |2b - 26|$$

- A) $[1, 25]$
B) $(-\infty, 1] \cup [25, \infty)$
C) $(-\infty, \infty)$
D) $\{\}$

24. Solve the absolute value inequality. Graph the solution set and write the solution in interval notation.

$$|2b - 9| \geq -1$$

- A) [4, 5]
B) $(-\infty, 4] \cup [5, \infty)$
C) $(4, 5)$
D) $(-\infty, \infty)$

25. Solve the absolute value inequality. Write the solution in interval notation.

$$13 + |2m - 16| \leq 13$$

- A) $(-\infty, 8)$
B) $\{8\}$
C) $(-\infty, \infty)$
D) $\{\}$

Answer Key

1. C
2. B
3. B
4. D
5. B
6. D
7. D
8. A
9. C
10. A
11. D
12. A
13. C
14. A
15. C
16. B
17. A
18. A
19. D
20. C
21. D
22. A
23. D
24. C
25. B