

# Algebra I

## Worksheet 5.6

Name \_\_\_\_\_

**Determine whether the given value is a solution of the inequality.**

1.  $4|x - 5| + 6 < 14$ ; 10

2.  $2|x + 6| - 4 \geq 4$ ; -2

3.  $-|x + 6| + 8 < 0$ ; 2

4.  $3|x + 2| - 2 > 7$ ;  $x = -3$

5.  $-|x - 4| + 8 > 1$ ;  $x = 10$

6.  $2|x - 7| - 9 \geq 5$ ;  $x = -1$

7.  $-2|x + 1| + 4 \leq 8$ ;  $x = -5$

8.  $|3x + 6| - 10 < 3$ ;  $x = -6$

9.  $-|3 - 2x| + 4 > 0$ ;  $x = -1$

**Match the inequality with an equivalent inequality.**

10.  $|x| - 3 < 1$

11.  $|x - 3| > 1$

12.  $|x - 3| < 1$

A.  $x > 4$  or  $x < 2$

B.  $x < 4$  and  $x > 2$

C.  $x < 4$  and  $x > -4$

**Solve the inequality. Graph your solution.**

13.  $|x| \leq 5$

14.  $|x| > 1$



15.  $|x| \geq 0.5$

16.  $|x| \geq \frac{1}{4}$



17.  $|x| < 2.4$



18.  $|x| \leq 2.25$



19.  $|x + 1| > 2$



20.  $|x - 3| \leq 5$



21.  $|x + 5| \geq 1$



22.  $|2x + 3| \leq 4$



**Match the inequality with the description.**

23. The distance between  $x$  and 2 is less than or equal to 4.

A.  $|x - 4| \leq 2$

24. The distance between  $x$  and 4 is less than or equal to 2.

B.  $|x - 2| \leq 4$

25. The distance between  $x$  and 4 is greater than or equal to 4.

C.  $|x - 2| \geq 2$

26. The distance between  $x$  and 2 is greater than or equal to 2.

D.  $|x - 4| \geq 4$

**Write the verbal sentence as an inequality. Then solve the inequality and graph your solution.**

27. The distance between  $x$  and 3 is greater than 5.



28. The distance between  $x$  and  $-2$  is less than 7.



29. The distance between  $x$  and 4 is less than or equal to 2.



30. The distance between  $x$  and  $-6$  is greater than or equal to 1.



31. The distance between  $x$  and  $-7$  is less than 2.



32. **Body Temperature** An adult's body temperature is considered to be normal if it is  $98.6^{\circ}\text{F}$  with an absolute deviation of  $1^{\circ}\text{F}$ .
- Write an absolute value inequality that represents the normal temperature range.
  - Solve the inequality. What is the temperature range?
33. **Car Mileage** Your car averages 32 miles per gallon on the highway. The actual mileage varies from the average by 5 miles per gallon.
- Write an absolute value inequality that represents the mileage range of your car.
  - Solve the inequality. What is the mileage range?

