

Algebra I

Review 5.4-5.6

Name _____

Translate the verbal phrase into an inequality. Then graph the inequality.

1. All real numbers that are less than or equal to -3 and greater than or equal to -8



2. All real numbers that are greater than 5 or less than or equal to -1



3. All real numbers that are greater than or equal to -2.5 and less than 3.5



Solve the inequality. Graph your solution.

4. $-3 < x + 1 \leq 5$



5. $-7 < x - 8 < 2$



6. $-5 < -5x \leq 20$



7. $0 \leq 2(x - 3) < 8$



8. $3x + 2 < 8$ or $-x + 3 < -2$



9. $2(x + 4) < 6$ or $-x - 3 \leq -7$



10. $5x < -30$ or $x + 10 > 7$



11. $3x + 5 \leq 1$ or $8 - x < 5$



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

12. Three times x is less than -6 and greater than -21 .



13. One less than x is less than -1 or 3 more than x is greater than or equal to 7.



14. The difference of $2x$ and 5 is greater than -3 and less than or equal to 11.



15. The sum of $3x$ and 1 is greater than -5 and less than or equal to 10.



16. **Temperature** The high temperature in a city last year was 95°F . The low temperature in this city last year was -5°F . Write and graph a compound inequality that represents the temperatures T throughout the year.



Solve the equation.

- | | |
|------------------------|--------------------------|
| 1. $ x = 9$ | 2. $ x = 2.25$ |
| 3. $ x = \frac{3}{2}$ | 4. $ x - 6 = 14$ |
| 5. $ x + 1 = 8$ | 6. $ 2x - 3 = 15$ |
| 7. $ 4x + 1 = 15$ | 8. $ 7x + 2 = 23$ |
| 9. $ 5 - 2x = 9$ | 10. $3 2x - 2 = 18$ |
| 11. $4 5x - 1 = 36$ | 12. $2 6x + 5 - 1 = 25$ |

Solve the equation, if possible.

- | | | |
|--------------------------------|------------------------------|-----------------------------|
| 13. $ x + 3 - 4 = -1$ | 14. $ x - 8 - 9 = -5$ | 15. $ x + 3 + 2.5 = 3$ |
| 16. $-6 10 - 2x = 24$ | 17. $-3 4x + 3 = -9$ | 18. $-4 5 + 2x = -16$ |
| 19. $-\frac{1}{3} 1 - 8x = 2$ | 20. $ 3x - 8 + 0.25 = 0.75$ | 21. $ 6x + 5 - 1.3 = -1.9$ |

Find the values of x that satisfy the definition of absolute value for the given value and the given absolute deviation.

- | | |
|---|---|
| 22. Given value: 3; absolute deviation: 5 | 23. Given value: 1; absolute deviation: 7 |
| 24. Given value: -4 ; absolute deviation: 2 | 25. Given value: -2.5 ; absolute deviation: 8 |

26. **Food Scale** Bakers will typically weigh out flour for recipes rather than use a measuring cup because weighing is a more accurate measure. A baker is using a scale that has an absolute error of 0.05 gram.
- Find the minimum and maximum possible weights if the scale is used to measure out 225 grams of flour.
 - Find the minimum and maximum possible weights if the scale is used to measure out 300 grams of flour.
 - Find the minimum and maximum possible weights if the scale is used to measure out 420 grams of flour.

LESSON
5.6

Solve the inequality. Graph your solution.

1. $|x| \geq 5$



2. $|x| < 6.5$



3. $|x| \geq \frac{3}{2}$



4. $|x - 6| \leq 1$



5. $|x + 7| > 11$



6. $|10 - x| < 2$



7. $|-x - 5| < 1$



8. $|2x + 1| \geq 5$



9. $|3x - 2| \leq 7$



10. $|8 - 3x| \geq 7$



11. $|\frac{1}{2}x - 4| > 20$



12. $|1 - \frac{4}{3}x| < 5$



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

13. The distance between x and 8 is less than 14.



14. The distance between x and -5 is greater than or equal to 12.



15. The distance between 9 and x is less than or equal to 8.



16. The distance between 10 and $2x$ is greater than 34.



Tell whether the statement is *true* or *false*. If it is false, give a counterexample.

17. If a is a solution of $|x + 4| < 7$, then a is also a solution of $x + 4 < 7$.
18. If a is a solution of $|x - 6| \geq 4$, then a is also a solution of $x - 6 \leq -4$.
19. **DVDs** The average price of a standard DVD is \$15.99 with a standard deviation of \$4. Write an absolute value inequality that describes this range in prices.
20. **Body Temperature** A canine's body temperature is considered to be normal if it is 101°F with an absolute deviation of 1.5°F .
- Write an absolute value inequality that represents the normal temperature range.
 - Solve the inequality. What is the normal temperature range?

