

Name: _____ Hour: _____ Date: _____

Study Guide - Chapter 1: DUE FRIDAY, OCTOBER 28th

On your test, you should be prepared to answer questions involving...

- Exponents
- Evaluating Algebraic Expressions
- Combining Like Terms
- Real Number System
- One Step and Multi Step Equations
- Absolute Value
- Inequalities
- Compound Inequalities

Learning Target: I can simplify and evaluate exponents.

Simplify the following exponents. SHOW YOUR WORK!

1. $x^3 \cdot x^2$

2. $(x^4)^6$

3. $\frac{x^4}{x^7}$

4. $x^3 + x^2$

5. $6x^3 \cdot 3x^2$

6. $(6x^2)^3$

7. $x^{-11} \cdot x^9$

8. $(x^4)^{-2}$

9. $\frac{5y^3x^2}{y^2x^6}$

Learning Target: I can combine like terms, and I can use the distributive property to combine like terms.

Combine the following like terms. Be sure to put your answers in the correct order.

9. $3x^3 + x^3 + x^2 - 7x^2 + 10 + 3$

10. $7p + 30d + -3p^2 + 2d$

11. $6(2w + v) - 4(2v + w)$

12. $-3x^3 + 2x^2 - 5x^9 + 5x^9 + 2x^2 + 10 + 10x^3 + 20$

Learning Target: I can classify and categorize numbers.

Classify the following numbers. Remember, some numbers can be grouped into multiple categories.

13. 4

14. 7.8

15. -34

16. $\sqrt{5}$

17. $\sqrt{16}$

Learning Target: I can evaluate and create one and multi-step equations.

Solve the following equations for the variable. Be sure to SHOW ALL YOUR WORK.

18. $4m = 80$

19. $20x = 10x + 100$

20. $30x + 9 = 99 - 15x$

21. $3(3x + 10) = 75$

Learning Target: I can define absolute value, and evaluate absolute value problems.

22. Define absolute value. _____

23. Solve for the variable. Graph your solution on a number line.

a) $|x| = 3$

b) $|y| = -3$

c) $|3x| = 9$

d) $6 \cdot |-8p| = 4$

$$23. |1 - b| = 3$$

$$24. 9|10n| + 3 = 93$$

$$25. 3 + 3|n - 4| = 3$$

Learning Target: I can solve, graph, and create inequalities and compound inequalities.

Solve the following inequalities, and graph them on the number lines provided.

$$26. -12 > x - 7$$

$$27. -4x - 13 > -21$$

$$28. 6y - 3 < -27 \text{ OR } -4y + 2 < -26$$

$$29. 5t + 7 > 2t + 4 \text{ and } 3t + 3 < 24 - 4t$$

$$30. |6n| \leq 18$$

$$31. 9|m - 8| - 10 < 26$$

Learning Target: I can use order of operations to evaluate algebraic expressions.

Solve.

32. $10x + 10y + z$, when $x = 1$, $y = 3$, and $z = -2$

33. $2(a - b) - 5w$, when $a = 3$, $b = -2$, and $w = 1$

34. While grilling steaks, Walter likes to keep the grill temperature at 425° , plus or minus 15° .

a) Write an absolute value inequality to model this situation. Let x represent the temperature of the grill.

b) Within what range of temperatures does Walter like the grill to be when he cooks his steaks?

35. It cost Lori \$14 to go to the movies. She bought popcorn for \$3.50 and a soda for \$2.50. How much was her ticket?

36. In 2005, the population of Bay City was 19,611. For each of the next 5 years, the population decreased by an average of 715 people per year.

a) What was the population in 2010?

b) If the population continues to decline at the same rate as from 2005 to 2010, what would you expect the population to be in 2025?