Name: ______620 Cumulative Review Use this as a final review packet. Complete the packet by working each question. Correct your packet using the answer key. If a question is incorrect, go back and try to find your mistake. Make your life easier by showing all your steps!

c.)
$$-6 - (-80)$$
 d.) $(-5)^2$

2. Simplify each expression.
a.)
$$6x + 3y - y + 2x$$
 b.) $c(4c + d)$

c.)
$$3.4t.5t$$
 d.) $6c - (-2c)^2$

e.)
$$5(2x+1) - 3x + 7$$
 f.) $4y - (7y - 3)$

g.)
$$(-3m^4n)(2m^5n^2)$$
 h.) $(2x^2y^3)^2$

3. Simplify each expression. Write your answer without negative exponents.

a.)
$$\frac{72x^3y^2z}{-6x^4yz^2}$$
 b.) $\frac{3x^5y}{9y^5}$

c.)
$$\left(\frac{5x^2}{xy}\right)^{-1}$$
 d.) $\frac{2x^3y^4}{xy^3} \cdot \frac{4x}{x^3y}$

e.)
$$5x^{-1} \div \frac{25}{x}$$
 f.) $\frac{3}{5} \div \frac{8}{9}$

- 5. Solve each equation. Check your solution.
 - a.) 3x + 2 = x 9

b.)
$$\frac{5x}{3} = \frac{2x-4}{5}$$

$$C.) \quad 6(2x-3)+4=12$$

6. Describe two methods, one algebraic and one visual, for finding the slope between two points on a line.

7. Find the slope of the line between the two points.
a.) (3, 8) and (-2, 5)
b.) (6, 2) and (20, -3)

8. Slope-Intercept form of a line is y = mx + b. Which is the slope?Which is the y-intercept? What does each represent?

9. Write the equation of a line, in slope-intercept form, with slope 3 passing through (-1, 4). Remember that you must SOLVE for the y-intercept.

10. Write the equation of a line, in slope intercept form passing through (3, 9) and (-5, 2).



12. Find the equation of each line. Identify the slope and the y-intercept for each.









13. Simplify each radical expression. a. $\sqrt{48}$ b.) $\sqrt{16x^3}$

c.)
$$\sqrt{12} \cdot \sqrt{3}$$
 d.) $\sqrt{15x} \cdot \sqrt{5y^2}$

e.)
$$\sqrt{\frac{24}{3}}$$
 f.) $2\sqrt{3} + \sqrt{27} - \sqrt{75}$

14. a.) Identify all the variables in the formula $A = P(1 + \frac{r}{n})^{nt}$. Be specific.

b.) Timmy invests \$5000 at 6% interest compounded monthly. How much will he have in his account after 5 years? Be careful converting 6% to a decimal! Use the formula $A = P(1 + \frac{r}{n})^{nt}$.

- 15. Find the slope and y-intercept for each equation. You may convert to slope-intercept form by solving for y or you may find 2 points and use the slope formula.
 - a.) 2x + 6y = 12 b.) 5x 3y = 15

- 16. Quickly sketch
- a.) exponential growth

b.) exponential decay

c.) constant growth d.) constant decay

17. Solve the following inequalities. Graph your solution on a number line. a.) 3x - 12 < 5 b.) $2x + 7 \ge 5x - 9$

- 18. Define and give examples of each type of number.a.) real
 - b.) rational
 - c.) irrational
- 19. Match each expression to a set of steps.
 a.) 2(x-5)
 b.) 5(x-2)
 c.) 2x-5
 - I Choose any number, subtract 5, and then multiply the result by 2.
 - II. Choose any number, multiply by 2, and then subtract 5 from the result.
 - III. Choose any number subtract 2, and then multiply the result by 5.
- 20. A line passes through points (-3, 1) and (1, -7). Explain how you know whether (2, -1), (-4, 3) and (0,5) are on the same line. Be specific.

21. Given the following functions - evaluate each expression. $g(x) = 2x^2 - 1$ h(x) = 5(3-x)F(x) = 3xb.) g(7) a.) f(2) f(g(0)) c.) h(-4) d.)

e.) g(f(x))

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The table below shows a linear relationship between the values of x and 22. у. Х y 1 1 2 6 3 11 4

a.) Based on the relationship in the table, what is the value of y when x is 7?

Determine a formula that generates the function. b.)

23. A polygon is given below. Determine the perimeter of the polygon. Show your work.



24. Determine an equation for the line graphed below. Identify the slope and the y-intercept.



- 25. Simplify the expressions.
 - a.) 100×10^9 b.) 3.24×10^{-4}

c.)
$$4.12 \times 10^3$$
 3.98×10^5 d.) $|-3-8|-|5-(-2)|$

e.)
$$3|2-6|$$
 f.) $4(2^3-7)-5^2$

26. A square has an area of 75 square meters. How can you determine the length of each side of the square? What are the dimensions of the square?

27. Between what two integers do the following radicals fall between. a.) $\sqrt{140}$ b.) $\sqrt{90}$

28. Evaluate the expressions. 8 ± 6.4

a.)
$$\frac{67+67+4}{48\div 6-4}$$
 b.) $5(3x+2)-7^2+9$

c.)
$$3-9 \div 3 \cdot 4 + 8^2$$
 d.) $x(2x^2 - 9x + 3)$