MATH 108 FINAL EXAM NAME _____
Fall 2012 Z-NUMBER _____
SECTION _____

PART I: TRUE or FALSE
Circle TRUE or FALSE, whichever is correct. (2 points each)

1. $5^0 = 1$ TRUE FALSE

2. To find the y-intercept(s) of a graph, we set $y = 0$, and solve for x. TRUE FALSE

3. $12 \div 2 \cdot 6 = 36$ TRUE FALSE

4. If $-3x < 12$, then $x > -4$. TRUE FALSE

5. $4^{-2} = -16$ TRUE FALSE

PART II: FILL-IN-THE-BLANK (2 points each)

6. Give an example of an integer that is not a whole number. Answer _____

7. (Reduce to lowest terms) $\frac{60}{36} =$ _____

8. $4 + 2 \cdot 5 =$ _____

9. 15% of what number is 24? Answer _____

10. Use the property listed to fill in each blank.

(a) Commutative property $(\cdot)$ $\qquad x \cdot y = \underline{\qquad\qquad}$

(b) Associative property $(+)$ $\qquad (x + y) + 3 = \underline{\qquad\qquad}$

(c) Distributive property $\qquad 5(x - 4) = \underline{\qquad\qquad}$

(d) Identity property $(+)$ $\qquad 6 + \underline{\quad} = \underline{\qquad\qquad}$

11. Write each number in scientific notation.

(a) $43,000 = \underline{\qquad\qquad\qquad\qquad}$

(b) $0.005 = \underline{\qquad\qquad\qquad\qquad}$

12. Write each number in standard notation.

(a) $2.7 \times 10^2 = \underline{\qquad\qquad\qquad\qquad}$

(b) $3 \times 10^{-1} = \underline{\qquad\qquad\qquad\qquad}$

PART III: MULTIPLE CHOICE

Circle the correct response. (2 points each)

13. Evaluate for $x = 12$ and $y = -3$.

$$\frac{3x}{y^2} - y$$

(a) -7

(b) -1

(c) 7

(d) 1

(e) None of these.

14. Which of the following is an irrational number?

(a) $\frac{3}{4}$

(b) $0.\overline{3}$

(c) $\sqrt{2}$

(d) All of these

(e) a and b only

PART IV: For problems 15 - 28, you must show all your work clearly on the exam for full credit. You must circle your final answer!! (5 pts. each unless otherwise specified.)

15. Solve each equation.

(a) $\frac{3x}{2} + 4 = 7$

(b) $\frac{2x-1}{3} = -5$

(c) $5(x-4) = 5x + 9$

(d) $2(x+2) - 6 = 4(x-1) - 3x$

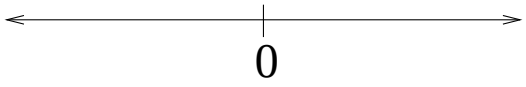
16. The length of a rectangle is two feet less than twice the width. If the perimeter is 116 feet, find the dimensions of the rectangle.

17. Solve for the indicated variable.

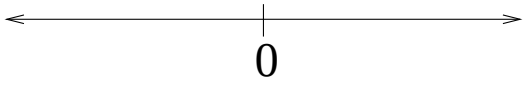
$$A = \frac{1}{3}BC \ ; \text{ for } B$$

18. Solve each inequality and graph the solution set.

(a) $-4x + 3 < 15$



(b) $1 < 3x - 2 \leq 7$



19. Consider the following equation.

$$3x + 2y = 6$$

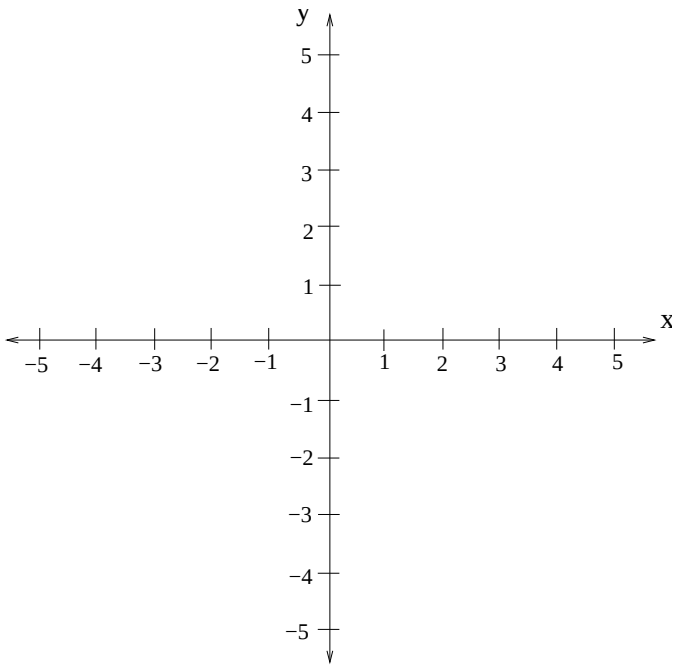
(a) [4 pts.] Find the x-intercept.

(b) [4 pts.] Find the y-intercept.

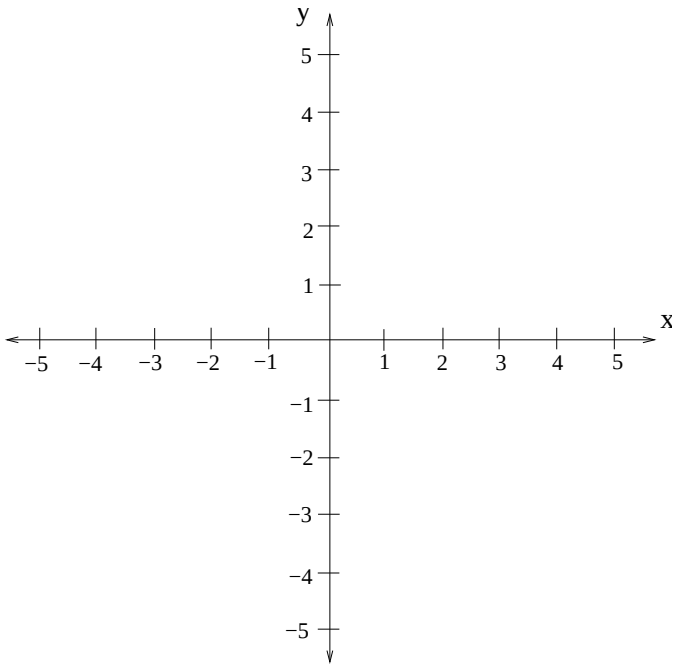
x-intercept: (,)

y- intercept: (,)

(c) [4 pts.] Using the intercept method, graph $3x + 2y = 6$ in the rectangular coordinate system below.



20. Graph the following equation. $y = -2$



21. Use the substitution method to solve the following system of equations.

$$\begin{cases} 2x + 3y &= 1 \\ -x + y &= -3 \end{cases}$$

22. Use the addition (elimination) method to solve the following system of equations.

$$\begin{cases} 2x - 3y &= 13 \\ 5x + 2y &= 4 \end{cases}$$

23. Children can buy tickets to a movie for \$3. The admission for adults is \$5. If 150 tickets are sold and the total receipts are \$630, how many of each type of ticket are sold?

24. Simplify each expression. Write each answer without using parentheses or negative exponents.

a.) $(-5x^3)^2$

(b) $\dfrac{x^3x^2}{x^5x^{-2}}$

(c) $(x^2y^{-4})^5$

(d) $\left(\dfrac{x^3}{x^{-1}}\right)^{-2}$

25. Perform the indicated operations and simplify.

$$4(x^2 - 3x) + (5x + 6) - (x^2 + 2x - 1)$$

26. Perform the indicated operations and simplify.

(a) $4x^2(2x^2 - 5x + 3)$

(b) $(5x - 3)(4x + 2)$

(c) $(2x - 5)^2$

(d) $(3x + 2)(x^2 - 4x + 6)$

27. Divide using the method of long division.

(a) Divide $2x^2 - 9x - 8$ by $2x + 3$

(b) Divide $x^3 + 4x^2 - 10$ by $x - 2$

28. Factor completely each expression.

(a) $3xy^2 - 12x^2y + 6x^2y^2$

(b) $x^2 - 81$

(c) $5x^2 - 5xy + 2x - 2y$

(d) $25x^2 - 16y^2$

(e) $x^2 - x - 30$

(f) $3x^2 + 7x - 6$

(g) $x^3 + 3x^2 - 4x - 12$