FINAL EXAM
DECEMBER 21ST

MATH 59
MS. ADDIE EVANS

The only way to deal with an unfree world is to become so absolutely free that your very existence is an act of rebellion. -Albert Camus

YOUR NAME:

Directions: There are 112/100 points plus Extra Credit points.
READ the INSTRUCTIONS CAREFULLY.

1.) [2 points] Solve for y: $-\frac{3}{2} + y = \frac{5}{4}$

2.) [2 points] Solve for x: $4(2x - \frac{1}{8}) \le 32$

3.) [3 points] Graph the equation $2y = 5x + 12$.

4.) [3 points] Graph the equation $y = 5$

5.) [5 points] Find the x and y intercepts of $y = -3 - \frac{1}{2}x$. (Make sure to write them as a points).

6.) [5 points] What is the slope and the y-intercept of the equation $2x + y = 7$?

7.) [5 points] Write the equation for the line with points (3,6) and (-5,-2).

8.) [5 points] A drag queen charges $100 an hour to perform at private parties plus a flat fee of $50 for transportation costs. Write the equation that will allow her to determine the price she will charge for events where she performs for different lengths of time.

9.) [3 points] Simplify:

$$\text{a.)} \qquad (x^3b^7)(x^5b^9)$$

$$\text{b.)} \qquad \frac{a^{-7}b^{-2}}{a^5b^6}$$

$$\text{c.)} \qquad \left(\frac{x^2}{x^5y^4z^{-3}}\right)^2$$

10.) [8 points] Multiply the following

a.) $(x - 6)(x + 6)$

b.) $(x^3 - 5)(3x^5 + 7x - 20)$

11.) [3 points] Draw and label a rectangle that illustrates $(x + 4)(x + 9)$

12.) [5 points] Add or Subtract. Simplify by combining like terms.
$(3n^2 + 5n - 6) + (2n^3 - 5n^2 + n + 10) - (n^3 + 4n^2 - 7n)$

13.) [5 points] Divide and check

$$\frac{9x^7 - 3x^4 + 27x^2}{-3x^2}$$

14.) [10 points] Factor and check.

a.)

$$3x^2 + 2x - 5$$

d.)

$$t^2 - \frac{1}{4}$$

15.) [6 points] Solve for x by factoring first. Then check by plugging in all possible values. List restrictions if there are any.

a.)
$$x^2 + 5x = 0$$

b.)
$$x^2 - 7x - 18 = 0$$

c.)
$$4x^2 = 16$$

16. [12 points] Solve for x and y by using substitution or elimination. Check your answer in one of the equations. State if there is no solution or if there are infinite solutions.

a.) $x - 3y = 7$
$-4x + 12y = 28$

b.)$x - \frac{3}{2}y = 13$
$\frac{3}{2}x - y = 17$

17. [5 points] The width of a rectangle is 5 less than the length. If the perimeter of the rectangle is 84, what is the width and what is the length? The equation is $p = 2w + 2L$

18.) [10 points] If 1% of all Americans might be Extra Terrestrials and there are 272 million Americans, how many E.T.'s would that be?

19.) [5 points] Simplify

$$(x^3y^{-5}z^3) \cdot \left(\frac{2x^{-3}}{y^{-6}z^0}\right)$$

20.) [5 points] Simplify

$$\frac{(1.42 \cdot 10^{11})(3.06 \cdot 10^{13})}{2.56 \cdot 10^5}$$

Extra Credit: Explain what exponents have to do with decimals.

Extra Credit: If logarithms are defined as $\log_x x^y = y$. Find $\log_{12} 1728$.