PRACTICE FINAL EXAM
DUE DECEMBER 21ST

MATH 59
MS. ADDIE EVANS

You learned more than you think.

YOUR NAME:

Directions: You can get 115/100 plus extra credit for this test. Work on this very hard - it is worth 5% of your grade and will directly help you study for the test. This is what the test will look like but it will have easier versions of some of the problems. You can work with other students or make an appointment to ask me questions about it. Make sure to check all answers when instructed to.

DUE: Friday December 21st at the beginning of the test.

1.) [2 points] Solve for y: $\frac{2}{3} + y = -\frac{5}{6}$

2.) [2 points] Solve for x: $-\frac{3}{4}(5x - \frac{7}{8}) \leq 25$

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

4.) [3 points] Graph the equation $x = \frac{13}{12}$

5.) [5 points] Find the x and y intercepts of $y = -9 - 9x$. (Make sure to write them as a points).

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

7.) [5 points] Write the equation for the line with points (-3,-5) and (7,1).

8.) [5 points] A car rental company charges $68 to rent a car for a day as well as $0.26 for every mile driven. Write the equation that will tell you how much it would cost if you took rented a car for the day and drove around the city.

9.) [3 points] Simplify:

$$\text{a.)} \qquad (x^{-8}b^9)(x^2b^3)$$

$$\text{b.)} \qquad \frac{a^{-3}b^{-14}}{ab^2}$$

$$\text{c.)} \qquad \left(\frac{x^7}{xy^4z^{-2}}\right)^7$$

10.) [8 points] Multiply the following

a.) $\left(-\frac{10}{3}x^7\right)\left(\frac{12}{5}x^6\right)$

b.) $(x-7)(x+7)$

c.) $-2x(-2x^3 - 5x + 11)$

d.) $(x^2 - 9)(2x^3 + 3x - 9)$

11.) [4 points] Draw and label a rectangle that illustrates the following products:

a.) $x(x+5)$

b.) $(x+4)(x+9)$

12.) [5 points] Add or Subtract. Simplify by combining like terms.
$(3n^3 + 5n - 8) + (2n^4 - 7n^2 + n - 6) - (2n^7 + n^2 - 4n)$

13.) [5 points] Divide and check.

a.)
$$\frac{4x^5 - 2x^4 + 8x^2}{2x^2}$$

b.)
$$\frac{t^3 + 8}{t + 2}$$

14.) [10 points] Factor and check.

a.)
$$b(b+5) + 3(b+5)$$

b.)

$$x^9 y^6 - x^7 y^5 + x^4 y^4 + x^3 y^7$$

c.)

$$6x^2 + 3x - 15$$

d.)

$$t^2 - \frac{1}{9}$$

15.) [8 points] Solve for x by factoring first. Then check.

a.)

$$x^2 - 8x = 0$$

b.)

$$x^2 - 7x - 18 = 0$$

c.)

$$9x^2 = 4$$

d.)

$$\frac{3}{4x} + \frac{5}{x} = 1$$

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.) $y = 2x + 5$
$-2y = -4x - 10$

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

c.) $5a = 2b$
$2a + 11 = 3b$

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

17. [5 points] The width of a rectangle is 4 less than the length. If the perimeter of the rectangle is 32, what is the width and what is the length? The equation is $p = 2w + 2L$

18.) [10 points] If 14% of all Americans think Top Model is the best show and there are 272 million Americans in the U.S.A., how many Americans would that be that think Top Model is the best?

Of the people who think Top Model is the best show, 37% thought Chantel should have won instead of Saliesha. How many people think that Chantel should have won?

19.) [5 points] Simplify

$$(x^4 y^{-2} z^0) \cdot \left(\frac{5x^{-8}}{y^{-3} z^2} \right)$$

20.) [5 points] Simplify

$$\frac{(7.8 \cdot 10^7)(8.4 \cdot 10^{23})}{2.1 \cdot 10^{-12}}$$

Extra Credit: A strand of DNA (deoxyribonucliec acid) is about 1.5m long and $1.3x10^{-10}$cm wide. How many times longer is DNA than it is wide?

Extra Credit: Solve for x.

$$\frac{x-2}{x+3} = \frac{x-1}{x+1}$$