MATH 111 **FINAL EXAM REVIEW** **CSC**

1. Simplify each expression:
   a. $(-3)^2 - 3^2$ b. $\dfrac{4(5)}{3^2 - 9}$
   c. $-2(3)(-5) + \dfrac{|-8|}{-2^2}$
   d. $\dfrac{3(3^2) - 5(9-2)}{8(6-9) \div (-3)}$
   e. $\dfrac{-45 \div (-5)(3)}{-5 - 4(0-8)}$
   f. $\dfrac{1}{6} + 4\left(\dfrac{2}{5} - \dfrac{7}{10}\right)$
   g. $\dfrac{2}{5} + 0.38(0.2)$
   h. $4^{-1} + 3^{-1} + 2^0$
   i. $\dfrac{8}{5} + \dfrac{3}{x}$
   j. $1.1^2 - 2.3(5.2) \div 3.2$

2. Simplify each expression:
   a. $8 + 8(4z + 5) - z$
   b. $(x^2 + x) - (3x^2 + 2x - 1)$
   c. $3x^2y - 2xy + y^2 - 5x^2y + 3xy - y^2$
   d. $\dfrac{a^{-2}}{a^{-5}}$ e. $\dfrac{n^5}{n^3}$
   f. $(-5w^8)(9w^5)$
   g. $k^5 k^{-2} k^0$ h. $\dfrac{124}{340}$

3. Perform the indicated operations:
   a. $\left(\dfrac{2}{3}\right)\left(-\dfrac{1}{3}\right)\left(\dfrac{1}{2}\right)$
   b. $\dfrac{3m}{5} \div \dfrac{-m}{3}$
   c. $-3ab^2(4a - 5b)$
   d. $3\dfrac{7}{8} - 2\dfrac{1}{16}$
   e. $(5x - 2)(5x + 2)$
   f. $\sqrt{16} - \sqrt{36}$

4. Solve the following equations:
   a. $3(2x - 6) = 8x - 10$
   b. $4(x + 3) = 4 - 2x$
   c. $\dfrac{4}{5} = \dfrac{3}{4}y + \dfrac{1}{5}$
   d. $\dfrac{x}{8} - 2 = x + \dfrac{3}{4}$
   e. $0.8 = 0.2x + 3.4$
   f. $0.2x + 0.5(4 - x) + 0.3(4)$
   g. $\dfrac{3\frac{1}{4}}{2} = \dfrac{x}{8}$ h. $\dfrac{3}{4}x = 2\dfrac{1}{2}$
   i. $\dfrac{0.06}{x} = \dfrac{0.3}{0.4}$
   j. $\dfrac{m}{-4} - 11 = 9$

5. Solve $4b + 3p = 12$ for the variable b.

6. Convert $2.5\ ft^2$ to units of in^2.

7. Prime factorize each number:
   a. 3240 b. 495 c. 242

8. Evaluate:
   a. $|5b| - 7a$ for a = 8 and b = -7
   b. $\dfrac{2a + b}{a^2 - 25}$ for a = -5 and b = 30

9. Simplify the following expression and then evaluate for a = -1 , b = 2 and c = 4
   $2(a + b - 4) + 3(a - b + c)$

10. Find the area of the rectangle with base $7\dfrac{3}{4} inches$ and height $4\dfrac{1}{2} inches$.

11. Find the area of the scalene triangle with base $4\dfrac{1}{3} inches$ and height $6\dfrac{2}{5} inches$

12. How many sides are equal in an isosceles triangle ?

13. How many 3/4 cup containers can be filled with $2\dfrac{1}{2} cups$ of flour ?

14. The difference between seven times a number and five is subtracted from three, the result is 36. Find the number.

15. The area of a rectangular photo is 154 square feet and it has a width of 11 feet. Find its length.

16. Fill in the blank with = , < or >

a. $\frac{13}{28}.....\frac{15}{32}$ b. $\frac{3}{7}+\frac{2}{5}.....\frac{6}{7}\div\frac{5}{6}$

17. Draw a rectangular coordinate system and Plot the points: (4, 3), (2, 0), (-1, -2), (0, -4), (-3, 1), (2, -2)

18. Complete the tables below and then graph each equation.

a. $3x - y = 4$ b. $y = 3x - 2$

x	:	y
0	:	
	:	-1
2	:	

x	:	y
-1	:	
2	:	
	:	7

19. Thirty-nine and six-tenths is 44% of what number?

20. Find $1\frac{1}{4}\%$ of \$3000.

21. Maria's monthly allowance was raised from \$12 to \$15. What was the percent increase?

22. To increase the number of riders, a bus company reduced the price of a monthly pass from \$112 to \$98. What was the percent of decrease?

23. Two angles, x^0 and 83^0 are supplements. Find x .

24. If two angles of a triangle measure 45^0 and 87^0, then what is the measure of the third angle ?

25. Arrange the following numbers from smallest to largest.

0.4998 , -2 , $\frac{15}{30}$, $-\frac{5}{9}$

26. Is the ordered pair (-2, 3) a solution of the equation $3x - 5y = -21$?

27. Write $\frac{5}{8}$ as a decimal ……., write as a percent…….

28. Write 135% as a decimal ……. , write as a fraction…….

29. Write 0.78 as a fraction …….. , write as a percent…….

30. What percent of 120 is 75 ?

31. Find the length of the diagonal of the rectangle with length 5 feet and height 12 feet

32. Round Lake has a circular shoreline that is 3 miles in diameter. Find the area of the lake.

33. Your mom tells you that 8 pounds of ham will serve 20 people. At this rate, how many pounds of ham will be needed to serve 30 people?

34. To make the perfect blend of grape milk requires mixing 3 cups of grape juice with 5 cups of whole milk. How many cups of grape juice are needed to mix 12 cups of whole milk?

35. Tom bought three CDs at \$14.20 each and two CDs at \$11.99 each. If the tax was \$4.66, how much change did Tom receive if he paid his purchase with a \$100 bill ?

36. Each of the following illustrates an addition or multiplication property. Fill in the blank with.
    * AA for associative law of addition
    * AM for associative law of multiplication
    * CA for commutative law of addition
    * CM for commutative law of multiplication
    * Aid for additive identity property
    * Mid for multiplicative identity property
    * D for distributive law
    * X for none of the properties

    a. …….. … $2 + (7 + 3) = (2 + 7) + 3$
    b. ……... $2(7 + 3) = 2(7) + 2(3)$
    c. …… $2 + (3 + 7) = 2 + (7 + 3)$
    d. …… $2 \bullet (7 \bullet 3) = (2 \bullet 7) \bullet 3$
    e. ……. $6 + (0 + 5) = 6 + 5$
    f. ……. $\left(\frac{4}{5}\right) \bullet 1 = \frac{4}{5}$

37. Write an algebraic expression described by the English phrase and simplify:
    a. Five time the sum of a number and three.
    b. The difference between five times a number and twice that number.

38. Math 111 vocabulary:
Absolute value; complex fractions; denominator; divisibility; English phrase; equation; factors; improper fraction; mixed numbers; multiples; numerator; order of operations; ordered pairs; polynomial; prime factorization; proportion; ratio; square root; solution. * **GOOD LUCK !!**