EXAM 1 - MATH 102

DATE: Friday, September 22

INSTRUCTOR: George Voutsadakis

Read each problem very carefully before starting to solve it. Each question is worth 5 points. It is necessary to show your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. (a) Perform the operation $-\frac{7}{5} \div (\frac{28}{15})$. (1 point)
   (b) Perform the operation -3^4. (1 point)
   (c) Simplify and write your answer without negative exponents $(\frac{a^{-2}}{b^3})^{-3}$. (1 point)
   (d) Use the correct order of operations to simplify $6^2 \div 3 - 9 \cdot 2 \div 3 + 3$. (1 point)
   (e) Remove parentheses and combine like terms $8x - 3(x + y) - (x - y)$. (1 point)

2. (a) Solve the equation $4(3 - y) + 8 = 12(5 - y)$. (1 point)
   (b) Use the CRAM method to solve the equation $\frac{7x+2}{6} + \frac{1}{2} = \frac{x}{4}$. (2 points)
   (c) Solve the equation $7.2(3 - t) = 2.4(3 - t) + 4.8$. (2 points)

3. A disc jockey charges \$150 per hour with a set up fee of \$75.
   (a) Write a formula for the cost C of the disc jockey for h hours. (1 point)
   (b) Solve the formula of the previous part for h. (2 points)
   (c) If the cost of the disc jockey for Cindy's birthday was \$675, how many hours did he work? (2 points)

4. If the price of copper is 65 cents per pound and the price of zinc is 30 cents per pound, how many pounds of copper and zinc should be mixed to make 70 pounds of brass selling for 45 cents per pound?
   (a) Set and describe your variables carefully. (1 point)
   (b) Write two equations using your variables that mathematically reflect the data in the problem. (2 points)
   (c) Solve the equations to answer the problem. (2 points)

5. (a) Solve the inequality $-3x + 1 < -14$ and write the solution set in interval notation. (1 point)
   (b) Solve the inequality $\frac{8x-23}{6} + \frac{1}{3} \geq \frac{5}{2}x$ and write the solution set in interval notation. (2 points)
   (c) Solve the system of inequalities $4 \leq 3y - 8 \leq 10$ and write the solution in interval notation. (2 points)