## EXAM 1 - MATH 102

DATE: Friday, September 21

## **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. Perform the following operations:
  - (a)  $\left(-\frac{3}{10}\right)\left(-\frac{5}{12}\right)$  (1 point)
  - (b)  $-\frac{4}{5} \div \frac{15}{8}$  (2 points)
  - (c)  $-3^{-3}$  (2 points)
- 2. Simplify and write your answer without negative exponents:
  - (a)  $(-2x^5y^4)^{-4}(x^3y^2)^5$  (2 points)
  - (b)  $\left(\frac{x^{-3}y^4}{x^7y^{-2}}\right)^{-4}$  (3 points)
- 3. Solve the following equations:
  - (a) 5(x+1) + 3x + 2 = 8(x+2) + 2x + 1 (2 points)
  - (b)  $\frac{x+1}{2} + \frac{x+2}{3} + \frac{x+3}{4} = 16$  (3 points)
- 4. (a) Five times a certain number is 9 less than twice the number. Write an equation reflecting this statement. (2 points) Solve to find what the number is. (1 point)
  - (b) The Beatles have 20 more Recording Industry Association of America awards than Paul McCartney. If the number of awards received by the Beatles and McCartney total 74, how many awards do the Beatles have? (2 points)
- 5. A group of illegal immigrants cross the Arizona desert in a car traveling in a straight line at 90 miles per hour. An hour later, a border patrol vehicle starts after them from the border traveling 150 miles per hour on the same straight line.
  - (a) How long will it be before the border patrol reaches the immigrants? (3 points)
  - (b) At what distance from the border will the border patrol reach the immigrants? (2 points)