HOMEWORK 2 - MATH 102
DUE DATE: Tuesday, September 19
INSTRUCTOR: George Voutsadakis

Read each problem **very carefully** before starting to solve it. Four out of the eight problems will be chosen at random and graded. Each problem graded is worth 3 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points.

GOOD LUCK!!

1. Solve the following equations:

    (a) $8(x + 1) + 7x + 2 = 5(x - 2) + 2x - 1$

    (b) $x - (3 - 2x) = 5(x - 1) - 7$

2. Use the CRAM procedure to solve the equations:

    (a) $\frac{x}{10} - \frac{x}{6} = \frac{4}{3}$

    (b) $\frac{2x+1}{2} - \frac{3x+5}{4} = 1$

3. Solve the given formula for the indicated letter:

    (a) $V = \frac{1}{3}\pi r^2 h$ for h.

    (b) $7x - 4y = 13$ for y.

4. The area A of a trapezoid with bases a and b and height h is given by $A = \frac{1}{2}h(a + b)$.

    (a) Solve for h.

    (b) If the Area is 60 square units, its height is 10 units and its base a is 7 units, what is the length of its base b?

5. In the following problems, write the given statement as an equation and then solve it.

    (a) If 4 times a number is increased by 7, the result is 31. Find the number.

    (b) If 6 is subtracted from a third of a number, the result is one less than twice the number. Find the number.

6. The sum of three consecutive integers is -39. Find the integers.

7. Two sums of money totaling \$12,000 earn, respectively, 2% and 8% annual interest. If the interest from both investments amounts to \$840, how much is invested at each rate?

8. A freight train leaves the station traveling at 20 mi/hr. One hour later, a passenger train leaves the station on a parallel track traveling st 60 mi/hr. How far from the station does the passenger train overtake the freight train?