EXAM 1 - MATH 102 YOUR NAME:

Read each problem **very carefully** before starting to solve it. Each problem is worth 10 points. It is necessary to show **all** your work. Correct answers without explanations are worth 0 points. GOOD LUCK!!

1. Solve the equation

$$1 - 3(x - 2) = 4(x - 1) - 3.$$

2. Solve the equation

$$\frac{x-2}{3} - \frac{x-3}{5} = \frac{7}{15}.$$

3. How many liters of a 15% alcohol solution must be mixed with 10 liters of a 20% alcohol solution to obtain an 18% solution? (You get half the points for introducing carefully your variables and writing down your equations and half the points for finding the solution.)

4. George and Katie are BMW[®] bikers. One day, as they were riding around in the UP and in Wisconsin, Katie averaged 66 mph, whereas George averaged 58 mph, but George drove two and a half more hours than Katie. If they drove 765 miles (combined) then for how many hours did George drive?

5. (a) Solve the inequality $2 \ge \frac{5-3x}{4}$ and then graph the solution set.

(b) Solve the inequality $\frac{x-1}{3} - \frac{x+1}{5} < 1$ and then graph the solution set.

(c) Solve the combined inequality

$$2 \ge \frac{5-3x}{4}$$
 and $\frac{x-1}{3} - \frac{x+1}{5} < 1$

and graph the solution set.