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

1. Solve the following linear equation

$$\frac{1}{3}x - \frac{1}{2} = \frac{1}{5}x + \frac{1}{6}.$$

(**Hint**: You may want to start by clearing all denominators.)

2. How many gallons of a 70% per volume rubbing alcohol should be mixed with 10 gallons of a 95% per volume industrial strength alcohol to get an intermediate strength 82% per volume mixture? (An answer in the form "$\frac{2.7}{0.17}$ gallons" is perfectly acceptable.)