Fractions

Get into groups of two to three and work on the following. Elect one person to write up your answers neatly and turn the worksheet in by Tuesday of week 2. You may need to arrange a meeting outside of class, so consider exchanging contact information.

1. Perform the following and simplify:

$$\frac{6x}{3x+1} \cdot \frac{x-3}{x}$$
$$\frac{x-2}{x} \div \frac{x}{x+1}$$
$$\frac{\frac{4}{(x-5)^2}}{\frac{x}{x-5}}$$

$$\frac{x}{2x-3} + \frac{2}{x+1}$$
$$\frac{x-2}{x} + \frac{x}{x+1}$$
$$\frac{4}{(x+1)^2} - \frac{x}{x+1}$$

$$\frac{\frac{5x}{3}}{11} + \frac{1}{11}$$
$$\frac{x-2}{\frac{x}{3}} + \frac{x}{5}$$
$$\frac{\frac{4}{x+1}}{x+1} - \frac{1}{\frac{x+1}{x}}$$

2. A 100-gallon mixture of citrus extract and water is 3% citrus extract.

   (a) Write a rational expression in x whose values give the percentage (in decimal form) of the mixture that is citrus extract when x gallons of water are added to the mixture.

   (b) Find the percentage of citrus extract in the mixture if 50 gallons of water are added to it.

3. A reservoir holds 600.000 gallons and is half-full. Scientists do tests to find that the reservoir is .75% acid.

   (a) Find a rational expression in x whose value give the percentage (in decimal form) of acid in the reservoir when x gallons of water are added to it.

   (b) Find the percentage of acid in the reservoir if 150,000 gallons of water are added to it.