MATH 1000 - Quiz 1

Name: _____

Instructions: Write cleanly, show all work. Explain any trick questions.

1. Compute the following (write as an improper fraction):

   (a) $\frac{3}{2} + \frac{2}{5} =$

   Solution: Find common denominators and add:

$$\begin{aligned}\frac{3}{2} + \frac{2}{5} &= \frac{3}{2} \cdot \frac{5}{5} + \frac{2}{2} \cdot \frac{2}{5} \\ &= \frac{3 \cdot 5}{2 \cdot 5} + \frac{2 \cdot 2}{2 \cdot 5} \\ &= \frac{15}{10} + \frac{4}{10} \\ &= \frac{19}{10}\end{aligned}$$

   (b) $\frac{1}{x} + \frac{1}{1-x} =$

   Solution: Pretend x is a number, and do the same thing. Find common denominators and add:

$$\begin{aligned}\frac{1}{x} + \frac{1}{1-x} &= \frac{1}{x} \cdot \frac{1-x}{1-x} + \frac{x}{x} \cdot \frac{1}{1-x} \\ &= \frac{1 \cdot (1-x)}{x \cdot (1-x)} + \frac{x \cdot 1}{x \cdot (1-x)} \\ &= \frac{1-x}{x(1-x)} + \frac{x}{x(1-x)} \\ &= \frac{1-x+x}{x(1-x)} \\ &= \frac{1}{x(1-x)} = \frac{1}{x-x^2}\end{aligned}$$

   I would call both of the answers on the last line 'correct'.