

MATH 1010-2: QUIZ 8
October 28, 2010

1. (5 points) Simplify the following complex fraction

$$\frac{\left(1 + \frac{1}{x}\right)}{x}.$$

Solution. We first work inside the parentheses in the numerator, and find a common denominator:

$$1 + \frac{1}{x} = \frac{1}{1} + \frac{1}{x} = \frac{x}{x} + \frac{1}{x} = \frac{x+1}{x}.$$

So inverting and multiplying, we have

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

which is the final answer.

2. (5 points) Solve for x

$$\frac{x}{6} - 2 = \frac{2}{3}$$

Solution. In order to clear denominators on both sides, we should multiply both sides by 6:

$$6\left(\frac{x}{6} - 2\right) = 6\left(\frac{2}{3}\right).$$

Distributing the 6 through on the left-hand side we have

$$\frac{6x}{6} - 12 = \frac{6 \cdot 2}{3},$$

or

$$x - 12 = 4.$$

Adding 12 to both sides gives our final answer of $x = 16$.