

SchoolNova, Math 5c
Homework 8
Algebra with Fractions
November 10, 2019

Please provide sufficient details about how you solved the problem. More difficult problems are marked with a *. If unable to solve a problem, please present your thoughts and any partial solution.

1. Compute the following expressions:

(a) $\frac{4}{5} \div \frac{3}{10}$

(b) $\frac{3/4}{2/3}$

(c) $(2 \div 3) \div 5$

(d) $1 \div (2 + \frac{1}{3})$

(e) $\frac{2}{2 + \frac{1}{2+3}}$

2. Simplify the following expressions:

(a) $\frac{3x}{12}$

(b) $\frac{3}{12x}$

(c) $\frac{10x^2}{5x}$

(d) $\frac{10xy^2}{5y}$

3. Solve the following equations for x , and check your solution:

(a) $\frac{x}{2} + 1 = \frac{4}{7}x$

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

(c) $\frac{x}{2} - \frac{x}{3} = 8$

(d) $\frac{1}{x} + \frac{2}{x} = \frac{1}{4}$

4. Solve the following equations for x , and check your solution:

(a) $\frac{x+1}{x+3} = 9$

(b) $\frac{x-1}{3} - \frac{x-2}{4} = 1$

(c) $\frac{x-3}{x-1} = \frac{x+1}{x+2}$

5. Simplify the following expressions:

(a)

$$\frac{1}{x+1} - \frac{1}{x-1}$$

(b)

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

(c)

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

6. If the same number is added to the numerator and denominator of $\frac{2}{3}$, the result is 2. What is the number?
7. You are given two numbers, and one of them is three times another. The sum of their **reciprocals** is 4. What are the two numbers?