First Set of Homework for Math 05

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Please note: You should fully justify your answers.

Review of fractions

1. Replace the question marks with natural numbers so that the resulting equations are true:

(a) $\frac{1}{2} = \frac{?}{4} = \frac{3}{?} = \frac{?}{20} = \frac{15}{?}$ (b) $\frac{3}{5} = \frac{?}{20} = \frac{6}{?} = \frac{?}{100} = \frac{21}{?}$ (c) $\frac{0}{3} = \frac{?}{4} = \frac{?}{7}$

- 2. Write each fraction in the simplest form:
 - $\begin{array}{rrrr} (a) & \frac{9}{15} \\ (b) & \frac{10}{24} \\ (c) & \frac{18}{60} \\ (d) & \frac{11}{66} \\ (e) & \frac{21}{30} \end{array}$
- 3. Can you find a natural number to replace the question mark so that the following equation is true? How about if you are allowed to use rational numbers?

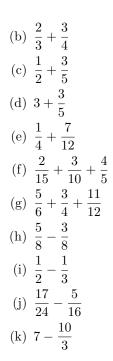
$$\frac{2}{5} = \frac{?}{3}$$

4. Perform the following multiplications and divisions. Give your answers in the simplest possible form:

(a) $\frac{2}{3} \cdot \frac{5}{7}$ (b) $\frac{7}{10} \cdot \frac{5}{21}$ (c) $\frac{70}{12} \cdot \frac{28}{77}$ (d) $\frac{2}{5} \div \frac{5}{6}$ (e) $\frac{3}{11} \div \frac{12}{33}$ (f) $\frac{2}{5}$

5. Perform the following additions and subtractions. Give your answers in the simplest possible form:

(a) $\frac{4}{7} + \frac{3}{7}$



- 6. Put the appropriate symbol (<, >, or =) in the blank so that we get a true statement:
 - (a) $\frac{3}{5}$ $\frac{4}{5}$ (b) $\frac{5}{7}$ $\frac{5}{8}$ (c) $\frac{2}{5}$ $\frac{3}{4}$ (d) $\frac{3}{5}$ $\frac{9}{15}$ (e) $\frac{7}{9}$ $\frac{2}{3}$
- 7. Put the following fractions in the numberline:

$$\frac{2}{7}, \quad \frac{1}{2}, \quad -\frac{13}{5}, \quad -\frac{3}{2}, \quad -\frac{11}{4}, \quad \frac{30}{7}$$

