

Review Exercise Set 14

Exercise 1: Add.

$$\frac{3}{8} + \frac{7}{8}$$

Exercise 2: Add.

$$\frac{4}{9} + \frac{5}{6}$$

Exercise 3: Add.

$$7\frac{3}{5} + 4\frac{9}{20}$$

Exercise 4: Subtract.

$$\frac{17}{20} - \frac{11}{20}$$

Exercise 5: Subtract.

$$\frac{11}{21} - \frac{5}{6}$$

Review Exercise Set 14 Answer Key

Exercise 1: Add.

$$\frac{3}{8} + \frac{7}{8}$$

Since the fractions have common denominators, begin by combining the fractions over the common denominator and add the numerators.

$$\begin{aligned} &= \frac{3+7}{8} \\ &= \frac{10}{8} \end{aligned}$$

Now, convert the improper fraction into a mixed number and reduce

$$\begin{aligned} &= 1\frac{2}{8} \\ &= 1\frac{\cancel{2}^1}{2 \times 2 \times \cancel{2}^1} \\ &= 1\frac{1}{4} \end{aligned}$$

Exercise 2: Add.

$$\frac{4}{9} + \frac{5}{6}$$

These fractions don't have a common denominator so begin by prime factoring the denominators to determine the Lowest Common Denominator (LCD). The LCD would be the highest power of each prime factor of both denominators.

$$\begin{aligned} \text{Factorization of 9: } &3 * 3 = 3^2 \\ \text{Factorization of 6: } &3 * 2 = 3 * 2 \\ \text{LCD: } &3 * 3 * 2 = 3^2 * 2 = 9 * 2 = 18 \end{aligned}$$

Multiply each fraction (numerator and denominator) by the missing factor necessary to get the LCD

9 has two 3's but is missing a 2
6 has a 3 and a 2 but is missing a second 3

$$\begin{aligned}
 &= \frac{4 \times 2}{9 \times 2} + \frac{5 \times 3}{6 \times 3} \\
 &= \frac{8}{18} + \frac{15}{18}
 \end{aligned}$$

Now, add the fractions and reduce to get the answer

$$\begin{aligned}
 &= \frac{8+15}{18} \\
 &= \frac{23}{18} \\
 &= 1\frac{5}{18}
 \end{aligned}$$

Exercise 3: Add.

$$7\frac{3}{5} + 4\frac{9}{20}$$

Factorization of 5: 5

Factorization of 20: $2 * 2 * 5 = 2^2 * 5$

LCD: 20

Missing factor: 2^2 or 4

Missing factor: none

$$\begin{aligned}
 &= 7\frac{3 \times 4}{5 \times 4} + 4\frac{9}{20} \\
 &= 7\frac{12}{20} + 4\frac{9}{20} \\
 &= (7+4)\frac{12+9}{20} \\
 &= 11\frac{21}{20} \\
 &= 12\frac{1}{20}
 \end{aligned}$$

Exercise 4: Subtract.

$$\begin{aligned} & \frac{17}{20} - \frac{11}{20} \\ &= \frac{17-11}{20} \\ &= \frac{6}{20} \\ &= \frac{3 \times \cancel{2}^1}{5 \times 2 \times \cancel{2}^1} \\ &= \frac{3}{10} \end{aligned}$$

Exercise 5: Subtract.

$$\frac{11}{21} - \frac{5}{6}$$

Factorization of 21: $3 * 7$

Factorization of 6: $2 * 3$

LCD: $2 * 3 * 7 = 42$

Missing factor: 2

Missing factor: 7

$$\begin{aligned} &= \frac{11 \times 2}{21 \times 2} - \frac{5 \times 7}{6 \times 7} \\ &= \frac{22}{42} - \frac{35}{42} \\ &= -\frac{13}{42} \end{aligned}$$