

## Review Exercise Set 11

Exercise 1: Perform the indicated operation.

$$\frac{x-1}{4} + \frac{x+6}{5} =$$

Exercise 2: Perform the indicated operation.

$$\frac{7}{8xy^2} - \frac{4}{3x} =$$

Exercise 3: Perform the indicated operation.

$$\frac{7}{3x-5} - \frac{5}{2x+7} =$$

Exercise 4: Perform the indicated operation.

$$\frac{5}{2x+7} + \frac{3x}{2x-3} =$$

Exercise 5: Perform the indicated operation.

$$\frac{a}{a^2-1} - \frac{2}{3a^2-2a-5} =$$

## Review Exercise Set 11 Answer Key

Exercise 1: Perform the indicated operation.

$$\frac{x-1}{4} + \frac{x+6}{5}$$

Determine LCD

$$4 = 2 * 2$$

$$5 = 5 * 1$$

$$\text{LCD} = 2 * 2 * 5 = 20$$

Multiply each fraction by a fractional form of one to make the denominators equal the LCD

$$\begin{aligned} & \frac{x-1}{4} + \frac{x+6}{5} \\ &= \frac{x-1}{4} \times \frac{5}{5} + \frac{x+6}{5} \times \frac{4}{4} \\ &= \frac{5x-5}{20} + \frac{4x+24}{20} \end{aligned}$$

Perform the addition and simplify (if possible)

$$\begin{aligned} &= \frac{5x-5+4x+24}{20} \\ &= \frac{9x+19}{20} \end{aligned}$$

Exercise 2: Perform the indicated operation.

$$\frac{7}{8xy^2} - \frac{4}{3x}$$

Determine LCD

$$8xy^2 = 2 * 2 * 2 * x * y * y$$

$$3x = 3 * x$$

$$\text{LCD} = 2 * 2 * 2 * x * y * y * 3 = 24xy^2$$

Exercise 2 (Continued):

Multiply each fraction by a fractional form of one to make the denominators equal the LCD

$$\begin{aligned} & \frac{7}{8xy^2} - \frac{4}{3x} \\ &= \frac{7}{8xy^2} \times \frac{3}{3} - \frac{4}{3x} \times \frac{8y^2}{8y^2} \\ &= \frac{21}{24xy^2} - \frac{32y^2}{24xy^2} \end{aligned}$$

Perform the subtraction and simplify (if possible)

$$= \frac{21 - 32y^2}{24xy^2}$$

Exercise 3: Perform the indicated operation.

$$\frac{7}{3x-5} - \frac{5}{2x+7}$$

LCD:  $(3x - 5)(2x + 7)$

$$\begin{aligned} &= \frac{7}{3x-5} \times \frac{2x+7}{2x+7} - \frac{5}{2x+7} \times \frac{3x-5}{3x-5} \\ &= \frac{14x+49}{(3x-5)(2x+7)} - \frac{15x-25}{(3x-5)(2x+7)} \\ &= \frac{14x+49-(15x-25)}{(3x-5)(2x+7)} \\ &= \frac{14x+49-15x+25}{(3x-5)(2x+7)} \\ &= \frac{-x+74}{(3x-5)(2x+7)} \end{aligned}$$

Exercise 4: Perform the indicated operation.

$$\frac{5}{2x+7} + \frac{3x}{2x-3}$$

LCD:  $(2x+7)(2x-3)$

$$\begin{aligned} &= \frac{5}{2x+7} \times \frac{2x-3}{2x-3} + \frac{3x}{2x-3} \times \frac{2x+7}{2x+7} \\ &= \frac{10x-15}{(2x+7)(2x-3)} + \frac{6x^2+21x}{(2x+7)(2x-3)} \\ &= \frac{10x-15+6x^2+21x}{(2x+7)(2x-3)} \\ &= \frac{6x^2+31x-15}{(2x+7)(2x-3)} \end{aligned}$$

Exercise 5: Perform the indicated operation.

$$\begin{aligned} &\frac{a}{a^2-1} - \frac{2}{3a^2-2a-5} \\ &= \frac{a}{(a+1)(a-1)} - \frac{2}{(3a-5)(a+1)} \end{aligned}$$

LCD:  $(a+1)(a-1)(3a-5)$

$$\begin{aligned} &= \frac{a}{(a+1)(a-1)} \times \frac{3a-5}{3a-5} - \frac{2}{(3a-5)(a+1)} \times \frac{a-1}{a-1} \\ &= \frac{3a^2-5a}{(a+1)(a-1)(3a-5)} - \frac{2a-2}{(a+1)(a-1)(3a-5)} \\ &= \frac{3a^2-5a-(2a-2)}{(a+1)(a-1)(3a-5)} \\ &= \frac{3a^2-5a-2a+2}{(a+1)(a-1)(3a-5)} \\ &= \frac{3a^2-7a+2}{(a+1)(a-1)(3a-5)} \end{aligned}$$