

## Review Exercise Set 9

Exercise 1: Perform the indicated operation.

$$\frac{10a^3}{5b} \times \frac{15b^4}{2a^5}$$

Exercise 2: Perform the indicated operation.

$$\frac{9x^2y^3}{14x} \times \frac{21y}{15xy^2}$$

Exercise 3: Perform the indicated operation.

$$\frac{21y}{15xy^2} \div \frac{12y^3}{10x}$$

Exercise 4: Perform the indicated operation.

$$\frac{10n^2 + 21n - 10}{5n^2 + 33n - 14} \times \frac{2n^2 + 6n - 56}{2n^2 - 3n - 20}$$

Exercise 5: Perform the indicated operation.

$$\frac{a^2 + 4a + 3}{a^2 - a - 2} \div \frac{a + 3}{a - 2}$$

## Review Exercise Set 9 Answer Key

Exercise 1: Perform the indicated operation.

$$\begin{aligned} & \frac{10a^3}{5b} \times \frac{15b^4}{2a^5} \\ &= \frac{2 \times 5a^3}{5b} \times \frac{15b^4}{2a^5} \\ &= \frac{\cancel{2} \times \cancel{5}a^3}{\cancel{5}b} \times \frac{15b^4}{\cancel{2}a^5} \\ &= \frac{15a^3b^4}{a^5b} \\ &= \frac{15b^{4-1}}{a^{5-3}} \\ &= \frac{15b^3}{a^2} \end{aligned}$$

Exercise 2: Perform the indicated operation.

$$\begin{aligned} & \frac{9x^2y^3}{14x} \times \frac{21y}{15xy^2} \\ &= \frac{3 \times 3x^2y^3}{2 \times 7x} \times \frac{3 \times 7y}{3 \times 5xy^2} \\ &= \frac{\cancel{3} \times 3x^2y^3}{2 \times \cancel{7}x} \times \frac{3 \times \cancel{7}y}{\cancel{3} \times 5xy^2} \\ &= \frac{9x^2y^4}{10x^2y^2} \\ &= \frac{9\cancel{x^2}y^{4-2}}{10\cancel{x^2}} \\ &= \frac{9y^2}{10} \end{aligned}$$

Exercise 3: Perform the indicated operation.

$$\begin{aligned} & \frac{21y}{15xy^2} \div \frac{12y^3}{10x} \\ &= \frac{21y}{15xy^2} \times \frac{10x}{12y^3} \\ &= \frac{\cancel{3} \times 7y}{\cancel{3} \times \cancel{3} xy^2} \times \frac{\cancel{2} \times \cancel{5} x}{\cancel{2} \times 6y^3} \\ &= \frac{7xy}{6xy^5} \\ &= \frac{7\cancel{x}}{6\cancel{x}y^{5-1}} \\ &= \frac{7}{6y^4} \end{aligned}$$

Exercise 4: Perform the indicated operation.

$$\begin{aligned} & \frac{10n^2 + 21n - 10}{5n^2 + 33n - 14} \times \frac{2n^2 + 6n - 56}{2n^2 - 3n - 20} \\ &= \frac{(2n+5)(5n-2)}{(5n-2)(n+7)} \times \frac{2(n+7)(n-4)}{(2n+5)(n-4)} \\ &= \frac{\cancel{(2n+5)} \cancel{(5n-2)}}{\cancel{(5n-2)} \cancel{(n+7)}} \times \frac{2\cancel{(n+7)} \cancel{(n-4)}}{\cancel{(2n+5)} \cancel{(n-4)}} \\ &= 2 \end{aligned}$$

Exercise 5: Perform the indicated operation.

$$\begin{aligned} & \frac{a^2 + 4a + 3}{a^2 - a - 2} \div \frac{a + 3}{a - 2} \\ &= \frac{(a+1)(a+3)}{(a+1)(a-2)} \times \frac{a-2}{a+3} \\ &= \frac{\cancel{(a+1)} \cancel{(a+3)}}{\cancel{(a+1)} \cancel{(a-2)}} \times \frac{\cancel{a-2}}{\cancel{a+3}} \\ &= 1 \end{aligned}$$