

Simplify the rational expressions by multiplying or dividing.

1) $\frac{4}{3} \times \frac{5}{7}$

5) $\frac{40x^3y^2}{24xy^4} \div \frac{27xy}{8x^2y^3}$

2) $\frac{5}{8} \times \frac{4}{15}$

6) $\frac{x^2-y^2}{x^3-y^3} \div \frac{x+y}{x}$

3) $\frac{7}{22} \times \frac{33}{35}$

7) $\frac{x^2-6x+9}{x^2-7x+12} \times \frac{x^3-4x^2+9x-36}{x^4-81}$

4) $\frac{3x^3}{4y^2} \times \frac{5y}{x^2}$

8) $\frac{x^2+2x-3}{x^2+7x+12} \cdot \frac{x+1}{x^2+4x-5}$

$$9) \frac{y+1}{x-2} \cdot \frac{x^2+2x}{6} \cdot \frac{y-1}{xy^2-x}$$

$$11) \frac{9x^2+6x-8}{6x^2+5x-4} \cdot \frac{2x^2-7x-4}{2x^2-5x-12} \cdot \frac{4x^2+4x-3}{6x^2-x-2}$$

$$10) \frac{x^4-y^4}{(x-y)^2} \cdot \frac{y^2}{x^2+y^2} \cdot \frac{x-y}{xy+y^2}$$

$$12) \left[\frac{2x}{x-1} + \frac{x^2}{x^2-1} \right] \div \frac{x^3}{1-x}$$

Answer Key

1) $\frac{20}{21}$

2) $\frac{1}{6}$

3) $\frac{3}{10}$

4) $\frac{15x}{4y}$

5) $\frac{40x^3}{81}$

6) $\frac{x}{x^2+xy+y^2}$

7) $\frac{1}{x+3}$

8) $\frac{x+1}{(x+4)(x+5)}$

9) $\frac{x+2}{6(x-2)}$

10) y

11) 1

12) $\frac{-2+3x}{x^2(x+1)}$