

Manipulating Rational Expressions

Simplify each expression.

1) $\frac{27a^3b^2c}{36a^3bc^2}$

2) $\frac{8-x}{x^2-14x+48}$

3) $\frac{24b+16}{8b-48} \cdot \frac{3b^2-18b}{6b^3+4b^2}$

4) $\frac{8x^2+28x}{3x^2+18x+15} \cdot \frac{15x+15}{2x+7}$

5) $\frac{x+2}{5x^3+20x^2} \div \frac{1}{x+4}$

6) $\frac{3n}{4n^3+24n^2} \div \frac{3n^2+18n}{n^2-3n-54}$

7) $\frac{4x+10}{x^2+3x-18} - \frac{2x-2}{x^2+3x-18}$

8) $\frac{2}{a+3} + \frac{2}{a+5}$

9) $\frac{4y}{2x^2y} + \frac{2y}{3y^3}$

10) $\frac{n}{n^2+13n+42} + \frac{2}{3n^2+6n}$

11) $\frac{1}{x-1} \left(1 - \frac{2}{x+1} \right)$

12) $\frac{\frac{6}{a^2} - \frac{6}{b^2}}{\frac{3}{a} + \frac{3}{b}}$

Answers to Manipulating Rational Expressions

$$1) \frac{3b}{4c}$$

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

$$3) \frac{3}{2b}$$

$$4) \frac{20x}{x+5}$$

$$5) \frac{x+2}{5x^2}$$

$$6) \frac{n-9}{4n^2(n+6)}$$

$$7) \frac{2}{x-3}$$

$$8) \frac{4a+16}{(a+3)(a+5)}$$

$$9) \frac{6y^2+2x^2}{3x^2y^2}$$

$$10) \frac{3n^2+2n+14}{3n(n+6)(n+7)}$$

$$11) \frac{1}{x+1}$$

$$12) \frac{2(b-a)}{ab}$$