

Simplifying Rational Expressions



Overview of problems



Example Set: A

Simplify each expression

$$\frac{3x}{15}$$

$$\frac{16}{30y}$$

$$\frac{10x^2}{50x}$$

$$\frac{24y^2}{12y^2}$$

$$\frac{2x^4}{8x}$$

$$\frac{15y^2}{10y^7}$$

$$\frac{4x}{4x + 1}$$

$$\frac{8y^2}{2y + 6}$$



Example Set: B

Simplify each expression

$$\frac{6x + 10}{2(x + 5)}$$

$$\frac{3x}{x + 3}$$

$$\frac{5x}{15x + x^2}$$

$$\frac{4x^2 + 6x}{2x(x - 3)(2x + 3)}$$

$$\frac{y + 3y^2}{y + 1}$$

$$\frac{t(t + 1) - 2(t + 1)}{3t + 3}$$



Example Set: C

Simplify each expression

$$\frac{x-5}{x^2-25}$$

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

$$\frac{x^2+4x-5}{x^2+8x+7}$$

$$\frac{9y^2-16}{6y-8}$$

$$\frac{3x^2+7x+2}{2x^2+9x+10}$$

$$\frac{3(y+6)+12}{y^2-100}$$

Simplifying Rational Expressions



Overview of problems- KEY



Example Set: A

Simplify each expression

$$\frac{3x}{15}$$

$$\frac{x}{5}$$

$$\frac{16}{30y}$$

$$\frac{8}{15y}$$

$$\frac{10x^2}{50x}$$

$$\frac{x}{5}$$

$$\frac{24y^2}{12y^2}$$

$$2$$

$$\frac{2x^4}{8x}$$

$$\frac{x^3}{4}$$

$$\frac{15y^2}{10y^7}$$

$$\frac{3}{2y^5}$$

$$\frac{4x}{4x + 1}$$

$$\frac{4x}{4x + 1}$$

$$\frac{8y^2}{2y + 6}$$

$$\frac{4y^2}{y + 3}$$



Example Set: B

Simplify each expression

$$\frac{6x + 10}{2(x + 5)}$$

$$\frac{3x + 5}{x + 5}$$

$$\frac{3x}{x + 3}$$

$$\frac{3x}{x + 3}$$

$$\frac{5x}{15x + x^2}$$

$$\frac{5}{15 + x}$$

$$\frac{4x^2 + 6x}{2x(x - 3)(2x + 3)}$$

$$\frac{1}{x - 3}$$

$$\frac{y + 3y^2}{y + 1}$$

$$\frac{y + 3y^2}{y + 1}$$

$$\frac{t(t + 1) - 2(t + 1)}{3t + 3}$$

$$\frac{t - 2}{3}$$



Example Set: C

Simplify each expression

$$\frac{x-5}{x^2-25}$$

$$\frac{1}{x+5}$$

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

$$x-2$$

$$\frac{x^2+4x-5}{x^2+8x+7}$$

$$\frac{x^2+4x-5}{x^2+8x+7}$$

$$\frac{9y^2-16}{6y-8}$$

$$\frac{3y+4}{2}$$

$$\frac{3x^2+7x+2}{2x^2+9x+10}$$

$$\frac{3x+1}{2x+5}$$

$$\frac{3(y+6)+12}{y^2-100}$$

$$\frac{3}{y-10}$$