

Accuplacer Study Modules

TOPIC: Simplify Rational Expressions

1. Simplify:

$$\frac{x^2 - 9x - 14}{x^2 + 2x - 8}$$

$$\frac{(x-2)(x-7)}{(x-2)(x+4)}$$

Factor the numerator and denominator.

$$\frac{\cancel{(x-2)}(x-7)}{\cancel{(x-2)}(x+4)}$$

Reduce the fraction.

Answer: $\left(\frac{x-7}{x+4}\right)$

Rewrite the remaining expressions.

2. Simplify:

$$\frac{2x^4 + 9x^3 - 5x^2}{6x^3 + x^2 - 2x}$$

$$\frac{x^2(x+5)(2x-1)}{x(2x-1)(3x+2)}$$

Factor the numerator and denominator.

$$\frac{\cancel{x}(x+5)\cancel{(2x-1)}}{\cancel{x}(2x-1)(3x+2)}$$

Reduce the fraction.

Answer: $\left(\frac{x(x+5)}{3x+2}\right)$

Rewrite the remaining expressions.

3. Simplify:

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

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

Factor the numerator and denominator.

$$\frac{-1\cancel{(x-2)}}{(x+2)\cancel{(x-2)}}$$

Reduce the fraction.

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

Rewrite the remaining expressions.

4. Simplify:

$$\frac{x^3 + 4x^2 - 9x - 36}{4x^2 + 28x + 48}$$

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

Factor the numerator and denominator.

$$\frac{\cancel{(x+4)}\cancel{(x+3)}(x-3)}{4\cancel{(x+3)}\cancel{(x+4)}}$$

Reduce the fraction.

Answer: $\left(\frac{x-3}{4}\right)$

Rewrite the remaining expressions.