

Accuplacer Study Modules

TOPIC: Simplify Rational Expressions

Khan Academy Link: <https://www.khanacademy.org/math/algebra2/rational-expressions-equations-and-functions/simplify-rational-expressions/v/simplifying-rational-expressions-introduction>

Steps to Simplify Rational Expressions:

Step 1: Factor both the numerator and denominator of the fraction. Remember to write the expressions in descending order, to factor out a negative number if the leading coefficient is a negative number, and use various factoring techniques to factor each expression.

Step 2: Reduce the fraction. To reduce the fraction, cancel out expressions in the numerator and denominator that are exactly the same.

Step 3: Rewrite any remaining expressions in the numerator and denominator.

Example: Simplify:

$$\frac{3x^2 - 9xy - 12y^2}{6x^3 - 6xy^2}$$

Step 1: Factor the numerator and denominator.

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

Step 2: Reduce the fraction.

$$\frac{\cancel{3}(x+y)(x-4y)}{\cancel{6}x(x+y)(x-y)}$$

Step 3: Rewrite any remaining expressions in the numerator and denominator.

$$\frac{x-4y}{2x(x-y)}$$

Now complete the four practice problem on the next page and check your answers!

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1. Simplify:

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

2. Simplify:

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

3. Simplify:

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

4. Simplify:

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