

CHAPTER 12: RATIONAL EXPRESSIONS

12.2: Simplifying Rational Expressions

PART 1: RATIONAL EXPRESSIONS

Fractions like $\frac{5}{9}$, $\frac{7}{12}$, and $\frac{1}{2}$ are rational numbers. An expression which can be written in the form $\frac{\text{polynomial}}{\text{polynomial}}$ is a **rational expression**. Here are some examples of rational expressions.

$$\frac{1}{x} \quad \frac{x+2}{x-3} \quad \frac{x^2-5}{x^2-10x+25}$$

Of course, the value of the expression in the denominator cannot be zero, since division by zero is undefined. For the rest of this chapter, assume that the values of the variables that make the denominator zero are excluded from the domain.

Like rational numbers, a rational expression is in simplest form if the numerator and denominator have no common factors except 1. For example, $\frac{z+5}{10z}$ is in simplest form since no factor of $10z$ is a factor of $z+5$.

OBJECTIVES

- I can simplify rational expressions

PART 2: SIMPLIFYING RATIONAL EXPRESSIONS

- 1 Simplify each expression.

a. $\frac{15b}{25b^2}$

b. $\frac{12c^2}{3c+6}$

c. $\frac{4m-2}{2m-1}$

PART 2: SIMPLIFYING RATIONAL EXPRESSIONS

2 Simplify each expression.

a. $\frac{3x + 12}{x^2 - x - 20}$

b. $\frac{2z - 2}{z^2 - 4z + 3}$

c. $\frac{8a + 16}{2a^2 + 5a + 2}$

PART 2: SIMPLIFYING RATIONAL EXPRESSIONS

3 Simplify each expression.

a. $\frac{x - 4}{4 - x}$

b. $\frac{8 - m}{m^2 - 64}$

c. $\frac{8 - 4r}{r^2 + 2r - 8}$

PART 1: DESCRIBING POLYNOMIALS

2 Write each polynomial in standard form. Then name each polynomial based on its degree and the number of its terms.

a. $6x^2 + 7 - 9x^4$

b. $3y - 4 - y^3$

c. $8 + 7v - 11v$

CAN YOU?? PROVE IT!!

- I can simplify rational expressions
 - Go back and finish all the blank problems ☺