

CHAPTER 12: RATIONAL EXPRESSIONS

12.3: Multiplying & Dividing Rational Expressions



OBJECTIVES

- I can multiply rational expressions
- I can divide rational expressions



PART 1: MULTIPLYING RATIONAL EXPRESSIONS

Multiplying rational expressions is similar to multiplying rational numbers.
If a , b , c , and d represent polynomials (with $b \neq 0$ and $d \neq 0$), then $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$.

1 Multiply.

a. $\frac{6}{a^2} \cdot \frac{-2}{a^3}$

b. $\frac{x-5}{x+3} \cdot \frac{x-7}{x}$



PART 1: MULTIPLYING RATIONAL EXPRESSIONS

2 Multiply $\frac{x-2}{8x}$ and $\frac{-8x-16}{x^2-4}$.



PART 1: MULTIPLYING RATIONAL EXPRESSIONS

3 Multiply.

a. $\frac{3}{c} \cdot (c^3 - c)$

b. $\frac{2v}{v+3} \cdot (v^2 - 2v - 15)$

PART 2: DIVIDING RATIONAL EXPRESSIONS

Recall that $\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c}$, where $b \neq 0$, $c \neq 0$, and $d \neq 0$.

When you divide rational expressions that can be factored, first rewrite the expression using the reciprocal before dividing out common factors.

4 Divide.

a. $\frac{a-2}{ab} \div \frac{a-2}{a}$

b. $\frac{5m+10}{2m-20} \div \frac{7m+14}{14m-20}$

PART 2: DIVIDING RATIONAL EXPRESSIONS

4 Divide.

a. $\frac{a-2}{ab} \div \frac{a-2}{a}$

b. $\frac{5m+10}{2m-20} \div \frac{7m+14}{14m-20}$

CAN YOU?? PROVE IT!!

I can multiply and divide rational expressions

Go back and finish all the blank problems ☺