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12-4 Multiplying and Dividing Rational Expressions.....#

GOAL:

Multiply and Divide Rational Expressions

$$\frac{4}{5} \cdot \frac{2}{3} = \frac{8}{15}$$

$$\frac{2}{8} \cdot \frac{10}{8} = \frac{4}{1}$$

$$\frac{2x}{3y} \cdot \frac{5x}{2} = \frac{5x^2}{3y}$$

Mar 17-11:35 AM

Multiplying Rational Expressions

If $a, b, c,$ and d are nonzero polynomials, then $\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$

The rules for multiplying rational expressions are the same as the rules for multiplying fractions.

You multiply the numerators, and you multiply the denominators.

Simplify FIRST then multiply!!!

$$\frac{2x^2}{9x} \cdot \frac{27}{4} = \frac{3x}{2}$$

$$\frac{12}{48} \cdot \frac{21}{15x^2} = \frac{1}{30x^2}$$

$$\frac{54x^2}{36x} = \frac{3x}{2}$$

Apr 13-10:26 AM

Remember!

Just as you can write an integer as a fraction, you can write any expression as a rational expression by writing it with a denominator of 1.

There are two methods for simplifying rational expressions. You can **simplify first** by dividing out and **then multiply** the remaining factors. You can also **multiply first** and **then simplify**. Using either method will result in the same answer.

Mar 28-9:37 AM

Multiply. Simplify your answer.

Thoughts...I look at this as two different problems.

$$\frac{6r^2}{5s^5} \cdot \frac{3r^2}{7s} = \frac{18r^4}{35s^6}$$

$$\frac{r^2}{s^5} \cdot \frac{r^2}{s}$$

Remember!
See the Quotient of Powers Property in Lesson 7-4.
 $\frac{a^m}{a^n} = a^{m-n}$

$$\frac{8x^2y^4}{5y^2} \cdot \frac{10y^2}{16y^2} \cdot \frac{x^2y}{2} = \frac{8}{5} \cdot \frac{10}{16} \cdot \frac{x^2y^3}{2}$$

$$\frac{x^2y^3}{yz^2} \cdot \frac{y^2z^2}{y^3}$$


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Multiply. Simplify your answer.

$\frac{1}{2} \cdot \frac{4}{3} = \frac{2}{3}$

$\frac{(c-4)}{5} \cdot \frac{45}{(-4c+16)} = \frac{-9}{4}$

$\frac{-4(c-4)}{5} = \frac{-9}{4}$



Apr 15-7:16 AM

Multiply. Simplify your answer.

$$\frac{5y^4z}{3xy^2} \cdot \frac{2x^2y^2}{4xy} = \frac{5y^4x^2}{6}$$

$$\frac{(x-3)(x-3)}{(x^2-6x+9)} \cdot \frac{10}{6(x-3)} = \frac{x(x-3)}{3}$$


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Extra Problems...

Multiply. Simplify your answer.

$$\frac{m-5}{m^2-4m-12} \cdot (3m+6)$$

$$\frac{3a^2+6a}{12b^2} \cdot \frac{2b^3}{3ab+6b}$$




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Assignment: p. 882 #2-17

3. $\frac{x-2}{x+3} \cdot \frac{2x(x+3)}{4x+12} = \frac{2(x-2)}{3}$

4.



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