7.2 Multiplying and dividing rational expressions

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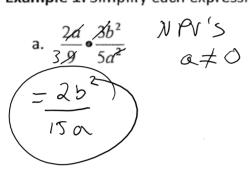
Pre-Calculus 11

7.2 Multiplying & Dividing Rational Expressions

Name: _____

The strategies for multiplying and dividing rational numbers can be used to multiply and dividerational expression. All _______ of each expression being multiplied or divided must be stated.

Example 1: Simplify each expression:



b.
$$\frac{2x^{2}(x+2)}{3x} \stackrel{\bullet}{\cancel{+}} \frac{5(x-4)}{\cancel{8x}(x+2)}$$

$$= 5(\cancel{x}-\cancel{4})$$

$$\cancel{x} + 2 \neq 0$$

$$\cancel{x} \neq -2$$

c.
$$\frac{7n^3}{4} \div \frac{(7n)^2}{-12}$$
 $\times 1PV'S$
 $= \frac{7n^3}{4} \times \frac{-12}{(7n)^2}$
 $= \frac{An^3}{4} \times \frac{-12}{(7n)^2}$
 $= \frac{An^3}{4} \times \frac{-12}{7}$
 $= -3n$

$$\frac{5(x-3)}{2x} \div \frac{10(x-3)}{3x(x+5)} \qquad \begin{array}{c} x \neq 3 \\ x \neq -5 \\ x \neq$$

[Type here]

When a polynomial in the numerator or denominator is a binomid or polynomial, it may be factored before simplifying the expression.

Example 2: Simplify each expression: + factor first then look for

a.
$$\frac{x^2 + 9x + 20}{2x^2 + 6x - 8} \bullet \underbrace{x^2 - 1}_{3x + 15}$$

$$= \frac{(x+4)(x+5)}{2(x^2+3x-4)} \cdot \frac{(x-1)(x+1)}{3(x+5)}$$

$$= \frac{(x+4)(x+5)}{2(x^2+3x-4)} \cdot \frac{(x-1)(x+1)}{3(x+5)}$$

$$= \frac{(x+4)(x+5)}{2(x+4)(x+5)} \cdot \frac{(x-1)(x+1)}{3(x+5)}$$

$$= \frac{(x+4)(x+5)}{3(x+5)} \cdot \frac{(x-1)(x+1)}{x+1}$$

$$= \frac{(x+4)(x+5)}{2(x+5)} \cdot \frac{(x-1)(x+1)}{3(x+5)}$$

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$$=\frac{1}{\sqrt{2}}$$

b.
$$\frac{x-2}{3x-21} \div \frac{3x^2-12}{3x^2-12x-63} \rightarrow 3(x^2-4)$$

$$=\frac{\chi+3}{3(\chi+2)}$$

Quiz Tresday 7,1-7.2