

8-4 Rational Expressions

A. Simplifying

Common Mistake:

$$\frac{4x}{5x} \quad \text{Can "x" be cancelled?} \quad \frac{4+x}{5+x}$$

←-----→



Let $x = 3$ or something else to see.

A. Simplifying (continued)

(Factor --> Cancel)

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



B. Recall

How do you multiply 2 fractions without the use of a calculator?

How do you divide 2 fractions without the use of a calculator?

KFC = Keep, Flip, Change (multiplication to division)

B. Multiplying ~ Simplify completely.

(Factor Completely --> Top Times Top/Bottom Times Bottom --> Cancel Factors that Appear on Opposite Sides)

$$\frac{a^2}{5a + 60} \cdot \frac{a^2 - 8a - 240}{a - 20}$$

B. Multiplying ~ Simplify completely.

(Factor Completely --> Top Times Top/Bottom Times Bottom --> Cancel Factors that Appear on Opposite Sides)

$$2) \frac{25n^3 - 85n^2}{35n^3 + 25n^2} \cdot \frac{21n + 15}{5n - 17}$$



C. Dividing ~ Simplify completely.

(Multiply by the Reciprocal)

$$\frac{3n + 48}{n^2 - 2n - 24} \div \frac{n^2 + 6n - 160}{n^2 - 6n - 40}$$



C. Dividing ~ Simplify completely.

(Multiply by the Reciprocal)

$$4) \frac{6}{11x^2 + 154x} \div \frac{12x - 36}{2x^2 - 14x + 24}$$