Name _____

Multiplying & Dividing Rational Expressions

Wrong!

$$\frac{x^2 - 7x + 12}{x^2 - 3x} \div 3x - 12 =$$

$-7x$

Right!

$$\frac{x^2 - 7x + 12}{x^2 - 3x} \div 3x - 12 =$$

$$\frac{x^2 - 7x + 12}{x^2 - 3x} \cdot \frac{1}{3x - 12} =$$

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

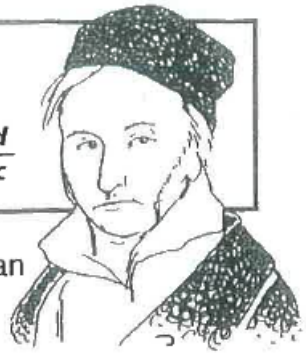
$$\frac{(x-3)(x-4)}{x(x-3)\,3\,(x-4)} = \frac{1}{3x}$$

Quick Review

1. To multiply, factor all polynomials. Then cancel out factors that are alike.
2. To divide, invert the divisor and multiply.

$$\frac{a}{b} \cdot \frac{c}{d} = \frac{ac}{bd}$$

$$\frac{a}{b} \div \frac{c}{d} = \frac{a}{b} \cdot \frac{d}{c} = \frac{ad}{bc}$$



Simplify each expression. Use the code to learn the name of the German mathematician who developed the fundamental theorem of algebra.

1. $\frac{x}{x-4} \div \frac{x+6}{x-4} =$

2. $\frac{2x-2}{x^2-1} \cdot x + 1 =$

7. $\frac{x^2-3x}{x^2-8x+15} \cdot \frac{(x-5)^2}{2x} =$

4 $\frac{8x+8}{18x} =$

3. $\frac{2x}{x+5} \div \frac{x-9}{x+5} =$

4. $\frac{2x-5}{-3} \cdot \frac{24}{4x-10} =$

5. $\frac{x^2-16}{3x^2} \div x-4 =$

6. $\frac{x+2}{x} \cdot \frac{x^2}{x^2-4} =$

9. $\frac{x^2-5x+6}{x+2} \div \frac{x-3}{x^2-4} =$

$\frac{4x}{x^2-25} \cdot \frac{x-5}{8x^2+20x} =$

11. $\frac{x^2-9}{5} \div \frac{x+3}{10} =$

12. $\frac{-6x+12}{5x} \div \frac{x+2}{10x} =$