4-3 Reteach to Build Understanding

Multiplying and Dividing Rational Expressions

1. Fill in the blanks to simplify the expression $\frac{x^3 + x^2 - 20x}{x^3 - x^2 - 12x}$.

$\frac{x^3 + x^2 - 20x}{x^3 - x^2 - 12x} = \frac{x(x^2 + x - 20)}{x(x^2 - x - 12)} = \frac{x(x - 4)(x + \_)}{\_(x - \_)(x + 3)}$	Factor the numerator and the denominator.
The domain is all real numbers except 0, 4, and __.	Find the domain of the rational expression.
$\frac{\cancel{x(x-4)}(x + 5)}{\cancel{x(x-4)}(x + 3)} = \frac{(x + \_)}{(x + \_)}$	Cancel common factors to simplify the rational expression.

2. Jamie was asked to find the quotient of $\frac{4x}{x + 4} \div \frac{4x + 16}{8x + 32}$ and wrote $\frac{2x}{x + 4}$. What was Jamie's error? What is the correct answer?

3. Find the product.

$\frac{4x + 8}{x^2 + 5x + 6} \cdot \frac{3x + 9}{4x + 20}$

$= \frac{\_(x + 2)}{(x + 2)(\_\_\_\_\_)} \cdot \frac{3(\_\_\_\_\_)}{4(\_\_\_\_\_)}$ Multiply and factor the expressions.

$= \frac{4(x + 2)}{(x + 2)(x + 3)} \cdot \frac{3(x + 3)}{4(x + 5)}$ Cancel the common factors.

$= \frac{\_}{1} \cdot \frac{3}{\_\_\_\_\_}$ Simplify.

$= \frac{\_}{(x + 5)}$ Multiply.