

## 4-1 Multiplying and Dividing Rational Expressions

## DAY 1

Identify any excluded values for the following expressions.

1.  $\frac{x-1}{(x+4)(x-1)}$

$$x \neq -4, 1$$

2.  $\frac{4}{x(x+17)}$

Simplify the given expression:

3.  $\frac{(x+8)}{(x+8)(x-1)} = \frac{1}{(x-1)}$

4.  $\frac{(2x+1)(3x+1)}{(x+1)(3x+1)}$

Multiply and identify any excluded values

5.  $\frac{x}{3x-6} \cdot \frac{x-2}{x+9}$

$$x \neq 2, -9$$

6.  $\frac{5x^2+25x}{2} \cdot \frac{4x}{x+5}$

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

7.  $\frac{(x-5)(x+3)}{10x+30} \cdot \frac{3}{(x-5)(x+2)}$

8.  $\frac{(x+1)(x-1)}{(x+4)(x+1)} \cdot \frac{x^2}{x^2-x}$

$$\frac{(x-5)(x+3)}{10(x+3)} \cdot \frac{3}{(x-5)(x+2)}$$

$$x \neq -3, 5, -2$$

$$\frac{3}{10(x+2)}$$

DAY 2

Divide and identify any excluded values

9.  $\frac{5x^2+10x}{(x+1)(x+1)} \div \frac{20x+40}{(x+1)(x-1)}$   $x \neq -1, 1, -2$

$\frac{5x(x+2)}{(x+1)(x+1)} \div \frac{20(x+2)}{(x+1)(x-1)}$

$\frac{5x(x+2)}{(x+1)(x+1)} \cdot \frac{(x+1)(x-1)}{20(x+2)} = \frac{5x(x-1)}{20(x+1)}$

$\frac{x(x-1)}{4(x+1)}$

11.  $\frac{(x-5)(x+4)}{5x^2-25x} \div \frac{2x-14}{(x+4)}$

$\frac{(x-5)(x+4)}{5x(x-5)} \div \frac{2(x-7)}{(x+4)}$   $x \neq 0, 5, -4, 7$

$\frac{(x-5)(x+4)}{5x(x-5)} \cdot \frac{(x+4)}{2(x-7)} = \frac{(x+4)(x+4)}{10x(x-7)}$

21. Explain the Error Maria finds an equivalent expression to  $\frac{x^2-4x-45}{3x-15} \div \frac{6x^2-150}{x^2-5x} = \frac{(x-9)(x+5)}{3(x-5)} \div \frac{6(x+5)(x-5)}{x(x-5)}$

$\frac{x^2-4x-45}{3x-15} \div \frac{6x^2-150}{x^2-5x}$

Her work is shown. Find and correct Maria's mistake.

$\frac{6(x-9)(x+5)(x+5)(x-5)}{3x(x-5)(x-5)}$

$= \frac{2(x-9)(x-5)^2}{x(x-5)}$

Forgot to Flip it!

Division is Keep, Change, Flip!

\*She factored it right, now fix the error by doing Keep, Change, Flip!