

FACTOR each expression.

1) $4x^2 - 81$ 2) $x^2 - x - 6$ 3) $2x^2 - 7x - 15$

MULTIPLY. Leave answers as simplified fractions.

4) $\frac{2}{5} \cdot \frac{10}{3}$ 5) $\frac{1}{3} \cdot \frac{3}{7}$ 6) $\frac{2}{8} \cdot \frac{10}{4}$

9.4 Simplifying Rational Expressions Part I

FACTOR FIRST

B4U cancel,
STATE RESTRICTIONS

then, start **CANCELING**

Rational Expressions

SIMPLIFY:

1) $\frac{27x^9}{39x^{145}}$ ③ $\frac{9}{13x^5}$

② $x \neq 0$ $\frac{9}{13x^5}, x \neq 0$

Rational Expressions

SIMPLIFY:

2) $\frac{6x^2 + 9x}{3x}$

$$\frac{\cancel{3x}(2x+3)}{\cancel{3x}} = 2x+3, x \neq 0$$

Rational Expressions

SIMPLIFY:

3) $\frac{x^2 + 2x - 3}{x^2 + 7x + 12} = \frac{(x+3)(x-1)}{(x+4)(x+3)}$

$$x \neq -4, -3 \quad \frac{x-1}{x+4}$$

Rational Expressions

SIMPLIFY: $-x^2 + 6x + 8$

4) $\frac{2x-6}{9-x^2} = \frac{2(x-3)}{-x^2+9}$

$$\frac{2(x-3)}{-(x^2-9)} \quad x \neq \pm 3$$

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

HOMework 9.4 (part I):

pg 511 #5, 19, 21, 43, 53

9.4 Simplifying Rational Expressions
Part II
Multiplying and Dividing

Multiplying or Dividing Rational Expressions:

1) $\frac{2x^{x+1}}{10y^2} \cdot \frac{5y^{y+1}}{4x^3}$
 $y \neq 0, x \neq 0$
 $\rightarrow \frac{10x^4y^3}{40x^3y^2} = \frac{1xy}{4}$
 $\frac{xy}{4}, y \neq 0, x \neq 0$

IF DIVIDING If Dividing, Copy Dot Flop

IF MULTIPLYING FACTOR

IF DIVIDING B4U cancel, STATE RESTRICTIONS

IF MULTIPLYING then, start CANCELING

Multiplying or Dividing Rational Expressions:

2) $\frac{2x^2+7x+3}{4-x} \cdot \frac{x^2-16}{x^2+8x+15}$

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

$$\frac{(2x+1)(x+4)}{-(x+5)} \quad x \neq 4, -3, -5$$

Multiplying or Dividing Rational Expressions:

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

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

$$x \neq -2, 2, 3, 0 \quad \frac{1}{x-2}$$

Multiplying or Dividing Rational Expressions:

4) $\frac{12x^5y}{x+3} \cdot \frac{x+3}{28x^2y^5}$

$$\frac{12x^5y}{x \cdot 3} \cdot \frac{x+3}{28x^2y^5}$$

$x \neq 0, -3$
 $y \neq 0$

$$\frac{3x^3}{7y^4}$$

HOMWORK 9.4:

WB Pg 117 #3-39 multiples of 3

Pg 511 #5, 19, 21, 43, 51

Activity 2: Classwork Grade!

- Each person will get an answer sheet.
- Find a person with the same card suit as you.
- I'll assign you a letter from A to K
- Work through the stations in the hall.
- I need to see your factoring step, restriction step, and cancel step.
- I am collecting this for a grade.

HOMWORK 9.4 (Part II):

Workbook p 71 3-39 by 3's

WB p 70 if you and your partner didn't finish it

Activity: Classwork Grade!

- Each person will get a worksheet.
- I am collecting this for a grade
- Staple your work to the back
- I need to see your factoring step, restriction step, and cancel step.

HOMEWORK 9.4 (Part II):
P. 511 #7-17 odd, 30-32 all,
39-41 all AND WB Pg 66
