Pick Up the WARM UP

QUESTIONS on HW

Front side only!

Hint: Look for opportunities to factor - look for common factors
- Difference of squares
- factor trinomials into → ( x )

(1) $\frac{3(x-5)(5x+1)}{15(x-5)} = \frac{5x+1}{5}$

(2) $-\frac{70x(y-1)}{100x^{2}(y-1)^{5}} = -\frac{7}{10x^{2}(y-1)^{4}}$

(3) $\frac{16(x^{2}-4)y^{5}y'}{14(x+2)y^{4}}$ $(x^{2}-4)=(x+2)(x-2)$ $= -\frac{8y}{7} = -\frac{8(x-2)y}{7}$

(4) $\frac{n^2-16}{4n-12} = \frac{(n+4)(n-4)}{4(n-3)}$

(5) $\frac{x^2+2x}{2x+8} \rightarrow \frac{x(x+2)}{2(x+4)}$

(6) $\frac{a-b}{b-a}$

$-(a-b)$

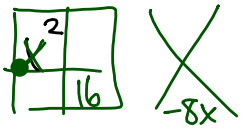
$\rightarrow \frac{a-b}{-(a-b)} = \frac{1}{-1} = -1$

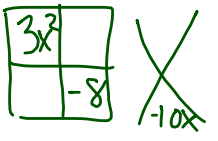
# Questions on HW?

78

(a)

$$\frac{x^2-8x+16}{3x^2-10x-8} = \frac{(\quad)(\quad)}{(\quad)(\quad)}$$

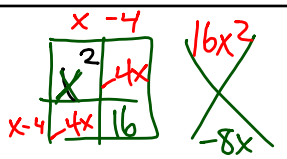


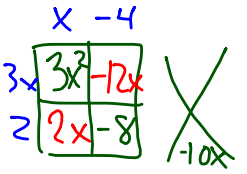



78

(a)

$$\frac{x^2-8x+16}{3x^2-10x-8} = \frac{(x-4)(x-4)}{(3x+2)(x-4)}$$




(b) $\frac{10x+25}{2x^2-x-15} = \frac{5(2x+5)}{(\quad x \quad)}$

+ ×

(c) $\frac{(k-4)(2k+1)}{5(2k+1)} \div \frac{(k-3)(k-4)}{10(k-3)}$

79 $4x+3 = 3x+3$

(a) $x = 0$

so 1 solution

(b) $3(x-4) - x = 5 + 2x$

$3x - 12 - x = 5 + 2x$

$2x - 12 = 5 + 2x$

$-2x \quad -2x$

$-12 = 5$

false statement

so no solutions

© (d)

81 $5 + 3x < 5$
$-5 \quad -5$

$3x < 0$

Inequality with 1 variable

(b) $-3x \geq 8 - x$

$+3x \quad +3x$

$\geq$

Alternative method

$-3x \geq 8 - x$

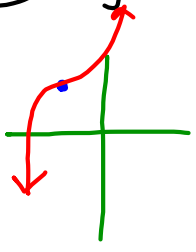
$+x \quad +x$

$-2x \geq 8$

$\leq$

(84) $y = (x+2)^3 + 4$

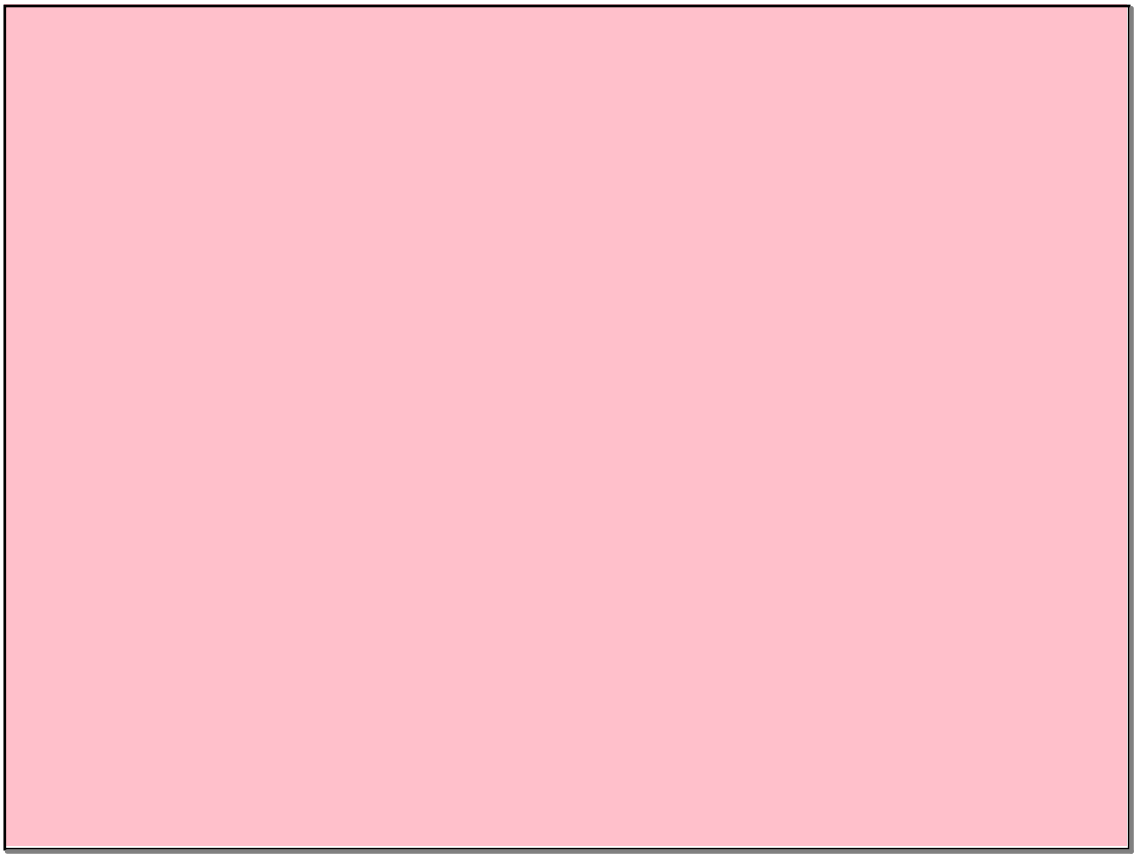
a



b $y = (x+2)(x+2)(x+2) + 4$

$y = (\quad)(x+2) + 4$

the rest can be seen in the solutions



# LATER TODAY. . .LCQ

- RECENT HW QUESTIONS
- RECENT CLASS "STUFF"
- SOMETHINGS FROM TODAYS LESSON

use your understanding of fractions to:

# Multiply and Divide Rational Expressions

(ALWAYS factor first!)

Rational Expression • Rational Expression

will look like:

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

which means:

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

You will be given a sheet with 6 questions

- if you wish you can staple/tape into your notes

Write down restrictions on a, b, and c only

# Lesson 3.2.3 Multiplying and Dividing Rational Expressions

[Factor first! < Look for common factors; Look for Diff. of Squares; Factor quadratic Trinomials]

Simplify and state restrictions

a) $\frac{4x+3}{x-5} \cdot \frac{x-5}{x+3} = \boxed{\frac{4x+3}{x+3}}$ $x \neq 5$ $x \neq -3$

b) $\frac{x+2}{9x-1} \div \frac{2x+1}{(27x-3)} \rightarrow \frac{x+2}{9x-1} \cdot \frac{3(9x-1)}{2x+1} \rightarrow \boxed{\frac{3(x+2)}{2x+1}}$

$9x-1=0$, $9x=1$ $\quad 27x-3=0$, $27x=3$ $\quad 2x+1=0$, $2x=-1$

$x \neq \frac{1}{9}$ $\quad x \neq -\frac{1}{2}$

c) $\frac{2m+3}{3m-2} \cdot \frac{7+4m}{3+2m} \rightarrow \frac{7+4m}{3m-2}$ $m \neq \frac{2}{3}$ $m \neq -\frac{3}{2}$

$\boxed{\frac{(y-2)^2(y+5)}{3y(y+2)}}$

d) $\frac{(y-2)^{3\,2}}{3y} \cdot \frac{y+5}{(y+2)(y-2)^1} \rightarrow$

$\frac{(y-2)(y-2)(y-2)}{3y} \cdot \frac{y+5}{(y+2)(y-2)} \rightarrow \frac{(y-2)^2}{3y} \cdot \frac{y+5}{y+2}$

$\frac{(y-2)^2(y+5)}{4y+2}$

Simplify (restrictions not required)

e) $\frac{15x^3}{3y} \div \frac{10x^2y}{4y^2}$

$\rightarrow \frac{5x^3}{y} \cdot \frac{2y}{5x^2} \rightarrow$ **2x**

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

No canceling factors if $\frac{0}{0}$

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

$= \frac{3x+1}{2x-3}$

# B.B.

Now higher level questions

In your notes,

a) Write down the problem

b) Factor everything first

c) Then look for factors to cancel.

$$\frac{n^2-25}{10n+20} \cdot \frac{2n^2-8}{n^2+7n+10}$$

diff. of squares

simple factoring

$$\frac{n^2-25}{10n+20} \cdot \frac{2n^2-8}{n^2+7n+10}$$

factor as a normal trinomial

simple factoring

diff of squares

$$\frac{(n+5)(n-5)}{5\cancel{10}(n+2)} \cdot \frac{\cancel{2}(n+2)(n-2)}{(n+2)(n+5)} \rightarrow \frac{(n-5)(n-2)}{5(n+2)}$$

$\cancel{6} \div \cancel{6} = 6$

$$\frac{n^2-25}{10n+20} \cdot \frac{2n^2-8}{n^2+7n+10} \rightarrow \frac{(n+5)(n-5)}{10(n+2)} \cdot \frac{2(n^2-4)}{(n+5)(n+2)}$$

$$\frac{n-5}{5(n+2)} \cdot \frac{(n+2)(n-2)}{n+2}$$

$$\frac{(n-5)(n-2)}{5(n+2)}$$

lastly

$$\frac{\frac{6(2x-3)}{12x-18}}{\frac{x-3}{}} \div \frac{3(x^2-3x-4)}{3x^2-9x-12} \quad \frac{6-2x}{2(3-x)}$$

$$\rightarrow \frac{6(2x-3)}{x-3} \cdot \frac{-2(x-3)}{2(3-x)} \quad \frac{3(x^2-3x-4)}{3(x-4)(x+1)}$$

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

?

simple

simple factoring then....

$$\frac{12x-18}{x-3} \div \frac{3x^2-9x-12}{6-2x}$$

simple

$$\frac{12x-18}{x+3} \div \frac{3x^2-9x-12}{6-2x}$$

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

$$\frac{6(2x-3)}{x-3} \cdot \frac{2(3-x)}{3(x-4)(x+1)}$$

$$\frac{2x-18}{x+3} \div \frac{3x^2-9x-12}{6-2x}$$

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

$$\frac{6(2x-3)}{x-3} \cdot \frac{2(3-x)}{3(x-4)(x+1)}$$

## Assignment:

3 .... 90 to 94, 96