Warm Up

*Add, Subtract, Multiply, Divide WS

#'s-1, 2, 3, 5, 8, 9, 12, 13, 15

*Checking homework-please get it out (ws and book work day 2)

⑧ $\dfrac{\dfrac{x}{2x+1}}{5+\dfrac{3}{x}}$

$\dfrac{x}{2x+1} \div x\dfrac{5}{x\cdot 1}+\dfrac{3}{x}$

$\dfrac{x}{2x+1} \div \dfrac{5x+3}{x}$

$\dfrac{x}{2x+1} \cdot \dfrac{x}{5x+3}$

$\boxed{\dfrac{x^2}{(2x+1)(5x+3)}}$

## Warm Up

Evaluate each expression.

1) $\dfrac{4}{5} + \dfrac{4}{7}$    $\dfrac{4 \cdot 7}{5 \cdot 7} \quad \dfrac{4 \cdot 5}{7 \cdot 5}$

$\dfrac{28}{35} + \dfrac{20}{35} = \dfrac{48}{35}$

2) $\dfrac{5}{4} + \dfrac{3}{4}$    $\dfrac{8}{4} = 2$

3) $\dfrac{1}{2} + \dfrac{11}{8}$

$\dfrac{4}{8} + \dfrac{11}{8} = \dfrac{15}{8}$

4) $\dfrac{5}{4} + \dfrac{4}{3}$    $\dfrac{3 \cdot 5}{3 \cdot 4} \quad \dfrac{4 \cdot 4}{3 \cdot 4}$    $\dfrac{15}{12} + \dfrac{16}{12}$

$\dfrac{31}{12}$

# Adding & Subtracting with Like Dominators

$$\frac{a}{c} + \frac{b}{c} = \frac{a + b}{c}$$

## Add or Subtract

1) $\dfrac{1}{4x} + \dfrac{3}{4x}$

$$\dfrac{4}{4x} = \boxed{\dfrac{1}{x}}$$

2) $\dfrac{2x}{x+6} - \dfrac{5}{x+6}$

$$\boxed{\dfrac{2x-5}{x+6}}$$

## Add or Subtract

TOYO

3) $\dfrac{12}{5x} - \dfrac{2}{5x}$

4) $\dfrac{3x}{2x+5} - \dfrac{1}{2x+5}$

# Adding & Subtracting with Unlike Dominators

$$\frac{4}{3} - \frac{2}{7}$$

$$\frac{4}{3} \frac{(x\,7)}{(x\,7)} = \frac{28}{21} \qquad \frac{2}{7} \frac{(x\,3)}{(x\,3)} = \frac{6}{21}$$

so $$\frac{28}{21} - \frac{6}{21} = \frac{22}{21}$$

# Adding Rational Expressions

1) $\dfrac{7}{9x^2} + \dfrac{x}{3x^2+3x}$

$\dfrac{(x+1)}{(x+1)} \dfrac{7}{9x^2} + \dfrac{x}{3x(x+1)} \cdot \dfrac{3x}{3x}$

$3x \cdot \boxed{3x} = 9x^2$

$\dfrac{7x+7+3x^2}{9x^2(x+1)}$

$\boxed{\dfrac{3x^2+7x+7}{9x^2(x+1)}}$

$\cancel{\dfrac{21}{7}}$

# Adding Rational Expressions

2) $\dfrac{3}{10x^2} + \dfrac{2x}{5x^2-10x}$

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

$\dfrac{3x-6 + 4x^2}{10x^2(x-2)}$

$$\dfrac{4x^2 + 3x - 6}{10x^2(x-2)}$$

$\dfrac{-24}{3}$

# Adding Rational Expressions

3) $\dfrac{1}{3x^2} + \dfrac{x}{9x^2-12x}$

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

$\dfrac{3x-4+x^2}{3x^2(3x-4)}$

$\boxed{\dfrac{x^2+3x-4}{3x^2(3x-4)}}$ or $\boxed{\dfrac{(x+4)(x-1)}{3x^2(3x-4)}}$

# Adding Rational Expressions

4) $\dfrac{x}{x^2-x-12} + \dfrac{5}{12x-48}$

$$12 \cdot \dfrac{x}{12(x-4)(x+3)} + \dfrac{5 \cdot (x+3)}{12(x-4)(x+3)}$$

$$\dfrac{12x + 5x + 15}{12(x-4)(x+3)}$$

$$\dfrac{17x+15}{12(x-4)(x+3)}$$

# <u>Subtracting Rational Expressions</u>

1) $\dfrac{x+2}{2x-2}$ - $\dfrac{-2x-1}{x^2-4x+3}$

$(x-3)\dfrac{x+2}{2(x-1)} - \dfrac{+(2x+1)\cdot 2}{(x-3)(x-1)\cdot 2}$

$\dfrac{x^2+2x-3x-6+4x+2}{2(x-3)(x-1)}$

$\dfrac{x^2+3x-4}{2(x-3)(x-1)}$

$\dfrac{(x+4)(x-1)}{2(x-3)(x-1)} = \boxed{\dfrac{x+4}{2(x-3)}}$

# Subtracting Rational Expressions

2)  $\dfrac{x}{3x-15} - \dfrac{2x+2}{x^2-4x-5}$

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

$\dfrac{x^2+x-6x-6}{3(x-5)(x+1)}$

$\dfrac{x^2-5x-6}{3(x-5)(x+1)}$

$\dfrac{(x-6)(x+1)}{3(x-5)(x+1)}$

$$\boxed{\dfrac{x-6}{3(x-5)}}$$

Homework:

Finish ws

pg 586 #7, 11-14, 17-29 odd