

WARMUP

$$1) \frac{5}{8} + \frac{7}{8} = \frac{5+7}{8} = \frac{12}{8} = \frac{3}{2}$$

$$2) \frac{7}{20} - \frac{3}{20} = \frac{7-3}{20} = \frac{4}{20} = \frac{1}{5}$$

$$3) 5\frac{1}{3} + 4\frac{2}{3} = \frac{16}{3} + \frac{14}{3} = \frac{30}{3} = 10$$

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

$$9 + 1$$
$$\begin{array}{r} 4 \\ 1 \times 4 \\ 5 \end{array}$$

$$\begin{array}{r} -40 \\ 8 \times -5 \\ 3 \end{array}$$

$$55) \frac{y^2 + 5y + 4}{y^2 + 12y + 32} \cdot \frac{y^2 + 3y - 40}{y^2 - 12y + 35}$$
$$\begin{array}{r} 32 \\ 4 \times 8 \\ 12 \end{array} \quad \begin{array}{r} 35 \\ -5 \times -7 \\ -12 \end{array}$$
$$\frac{(y+1)(y+4)}{(y+4)(y+8)} \cdot \frac{(y+8)(y-5)}{(y-5)(y-7)} = \frac{y+1}{y-7}$$

$$59) \frac{2x+2y}{3} \cdot \frac{x-y}{x^2-y^2} = \frac{2(x+y)}{3} \cdot \frac{x-y}{(x+y)(x-y)}$$
$$= \frac{2}{3}$$

Section 7.3 Adding and Subtracting Rational Expressions with the Same Denominator

ex: $\frac{2x-1}{3} + \frac{x+4}{3}$

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

$$\frac{3x+3}{3}$$

$$\frac{\cancel{3}(x+1)}{\cancel{3}}$$

x+1

ex: $\frac{3x-2}{5} + \frac{2x+12}{5}$

$$\frac{3x-2 + 2x+12}{5}$$

$$\frac{5x+10}{5}$$

$$\frac{\cancel{5}(x+2)}{\cancel{5}}$$

x+2

ex: $\frac{x^2}{x^2-9} + \frac{9-6x}{x^2-9}$

$$\frac{x^2 + 9 - 6x}{x^2 - 9}$$

$$\frac{x^2 - 6x + 9}{x^2 - 9}$$

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

$$\frac{x-3}{x+3}$$

$$\begin{array}{ccc} & 9 & \\ -3 & \times & -3 \\ & -6 & \end{array}$$

ex: $\frac{x^2}{x^2-25} + \frac{25-10x}{x^2-25}$

$$\frac{x^2 + 25 - 10x}{x^2 - 25}$$

$$\frac{x^2 + 25 - 10x - 5 \times -5}{x^2 - 25}$$

$$\frac{x^2 + 25 - 10x}{x^2 - 25}$$

$$= \frac{x-5}{x+5}$$

$$\frac{\cancel{(x-5)}(x-5)}{\cancel{(x-5)}(x+5)}$$

$$\underline{\text{ex:}} \quad \frac{2x+3}{x+1} - \frac{x}{x+1}$$

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

$$\frac{x+3}{x+1}$$

$$\underline{\text{ex:}} \quad \frac{3x^2+4x}{x-1} - \frac{11x-4}{x-1}$$

$$\frac{(3x^2+4x) - (11x-4)}{x-1}$$

$$\frac{3x^2+4x-11x+4}{x-1}$$

$$\frac{3x^2-7x+4}{x-1} \quad \left. \vphantom{\frac{3x^2-7x+4}{x-1}} \right\}$$

$$\frac{\cancel{(x-1)}(3x-4)}{\cancel{x-1}}$$

$$3x-4$$

$$\underline{\text{ex:}} \quad \frac{5x+1}{x^2-9} - \frac{4x-2}{x^2-9}$$

$$\frac{(5x+1) - (4x-2)}{x^2-9}$$

$$\frac{5x+1-4x+2}{x^2-9}$$

$$\frac{x+3}{x^2-9}$$

$$\frac{\cancel{x+3}^1}{(\cancel{x+3})(x-3)}$$

$$\boxed{\frac{1}{x-3}}$$

$$\frac{2}{20} = \frac{\textcircled{1}}{10}$$

p484-485 3-36 multiples of 3

$$15) \quad \frac{4x+1}{6x+5} + \frac{8x+9}{6x+5} = \frac{12x+10}{6x+5} = \frac{2(\cancel{6x+5})}{\cancel{6x+5}} = 2$$