

2-2 HW Answer Key

1. $\frac{4}{x}, x \neq 0, 2$

2. $\frac{(x+6)}{(x-6)}, x \neq 6$

3. $2, x \neq -4$

4. $3, x \neq \frac{2}{3}$

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

6. $\frac{14x^2 - 7x + 2}{(x+2)(4x-1)}, x \neq \frac{1}{4}, -2$

7. $\frac{(7)(2x-3)}{(3)(x-2)}, x \neq 2$

8. $\frac{1}{x-2}, x \neq 2, 4$

9. See next page

Alg 2 Homework 2-2

Name Key (2016)Simplify. Identify any x-values for when the expression is undefined.

$$1. \frac{4x-8}{x^2-2x} = \frac{\cancel{4(x-2)}}{x(\cancel{x-2})} = \boxed{\frac{4}{x}}$$

$$x \neq 0, 2$$

$$2. \frac{x^2-36}{x^2-12x+36} = \frac{(x-6)(x+6)}{(x-6)(x-6)}$$

$$x \neq 6 = \boxed{\frac{x+6}{x-6}}$$

Add or subtract. Identify any x-values for when the expression is undefined.

$$3. \frac{3x+2}{x+4} - \frac{x-6}{x+4} = \frac{2x+8}{x+4}$$

$$x \neq -4 = \frac{2(\cancel{x+4})}{\cancel{x+4}} = \boxed{2}$$

$$4. \frac{9x}{3x-2} + \frac{6}{2-3x} \left(\frac{-1}{-1} \right) = \frac{9x}{3x-2} + \frac{-6}{3x-2}$$

$$x \neq \frac{2}{3} = \frac{9x-6}{3x-2} = \frac{3(\cancel{3x-2})}{\cancel{3x-2}} = \boxed{3}$$

$$5. \frac{3x-4}{x^2-9} + \frac{2x-1}{x+3}$$

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

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

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

$$x \neq \pm 3$$

$$6. \frac{3x-2}{x+2} + \frac{2x}{4x-1}$$

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

$$\frac{12x^2-3x-8x+2}{(x+2)(4x-1)} + \frac{2x^2+4x}{(x+2)(4x-1)}$$

$$\frac{14x^2-7x+2}{(x+2)(4x-1)}$$

$$x \neq -2, \frac{1}{4}$$

$$7. \frac{2x-7}{x-2} + \frac{8x}{3x-6}$$

$$\left(\frac{3}{3}\right) \left(\frac{2x-7}{x-2}\right) + \frac{8x}{3(x-2)}$$

$$\frac{6x-21}{3(x-2)} + \frac{8x}{3(x-2)}$$

$$\frac{14x-21}{3(x-2)} = \frac{7(2x-3)}{3(x-2)}$$

$$x \neq 2$$

$$8. \frac{1}{x-4} - \frac{2}{x^2-6x+8}$$

$$\left(\frac{x-2}{x-2}\right) \left(\frac{1}{x-4}\right) - \frac{2}{(x-2)(x-4)}$$

$$\frac{x-2}{(x-2)(x-4)} - \frac{2}{(x-2)(x-4)}$$

$$\frac{x-4}{(x-2)(x-4)} = \frac{1}{x-2}$$

$$x \neq 2, 4$$

9. Show why you need to have like denominators when adding fractions.

$$\frac{1}{2} + \frac{2}{4} = \frac{1}{2} + \frac{1}{2} = 1 \quad \checkmark$$

$$\frac{1}{2} + \frac{2}{4} \stackrel{?}{=} \frac{3}{6} = \frac{1}{2} \quad \times$$

Day 2.5 - Extra Practice with Adding and Subtracting With Unlike Denominators

1.
$$\frac{5x+1}{x^2-64} - \frac{4x-7}{x^2-64} = \frac{x+8}{x^2-64} = \frac{\cancel{(x+8)}}{\cancel{(x+8)}(x-8)} = \boxed{\frac{1}{x-8}}$$

or
$$\frac{5x+1-4x+7}{x^2-64}$$

$x \neq -8, 8$

2.
$$\frac{3x-8}{x^2-9} - \frac{2x-5}{x^2-9}$$

$$3. \left(\frac{5x}{5x} \right) \frac{6}{x} + \frac{7}{5x^2} = \frac{30x}{5x^2} + \frac{7}{5x^2} = \frac{30x+7}{5x^2}$$

$5x^2 \neq 0$
 $x^2 \neq 0$
 $x \neq 0$

$$4. \frac{5}{xy} + \frac{7}{2x^2}$$

$$5. \quad \frac{5}{x} + 8 \left(\frac{x}{x} \right) = \frac{5}{x} + \frac{8x}{x} = \frac{5+8x}{x}$$

$x \neq 0$

$$6. \quad 7 - \frac{4}{x-9}$$

$$\begin{aligned}
 & 7. \left(\frac{x+6}{x+6} \right) \frac{x-1}{x-2} - \frac{x^2+4x-4}{x^2+4x-12} \\
 & \quad \quad \quad (x+6)(x-2) \\
 & \rightarrow \frac{x^2-x+6x-6}{(x+6)(x-2)} - \frac{x^2+4x-4}{(x+6)(x-2)} = \frac{\cancel{x-2}^1}{(x+6)\cancel{(x-2)}} = \boxed{\frac{1}{x+6}} \\
 & \quad \quad \quad x \neq -6, 2
 \end{aligned}$$

$$8. \quad \frac{x+2}{x-7} - \frac{x^2+4x+13}{x^2-4x-21}$$

9.
$$\frac{4x}{x^2-1} + \frac{3x}{x+1} - \frac{4}{x-1}$$

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

$$x \neq \pm 1$$

10.
$$\frac{2}{x+3} - \frac{x}{x-1} + \frac{x^2+2}{x^2+2x-3}$$

- Fix Homework 2-2
- Finish today's worksheet