

4.12

Adding Rational Expressions with a Common Denominator

• Example 1

Add or subtract as indicated. Express your results in simplest form.

$$(a) \frac{2x}{15} + \frac{x}{15} = \frac{2x + x}{15}$$

$$= \frac{3x}{15} = \frac{x}{5}$$

$$(b) \frac{5y}{6} - \frac{y}{6} = \frac{5y - y}{6}$$

$$= \frac{4y}{6} = \frac{2y}{3}$$

$$(c) \frac{3}{x} + \frac{5}{x} = \frac{3 + 5}{x} = \frac{8}{x}$$

$$(d) \frac{9}{a^2} - \frac{7}{a^2} = \frac{9 - 7}{a^2} = \frac{2}{a^2}$$

• • • CHECK YOURSELF 1

Add or subtract as indicated.

a. $\frac{3a}{10} + \frac{2a}{10}$

b. $\frac{7b}{8} - \frac{3b}{8}$

c. $\frac{4}{x} + \frac{3}{x}$

• • • CHECK YOURSELF ANSWER

1. (a) $\frac{a}{2}$; (b) $\frac{b}{2}$; (c) $\frac{7}{x}$.

4.12 Exercises

Name _____

Section _____

Date _____

A N S W E R S

1. _____

2. _____

3. _____

4. _____

5. _____

6. _____

7. _____

8. _____

9. _____

10. _____

11. _____

12. _____

Add or subtract as indicated. Express your results in simplest form.

1. $\frac{7}{x-5} + \frac{9}{x-5}$

2. $\frac{11}{x+7} - \frac{4}{x+7}$

3. $\frac{2x}{x-2} - \frac{4}{x-2}$

4. $\frac{7w}{w+3} + \frac{21}{w+3}$

5. $\frac{8p}{p+4} + \frac{32}{p+4}$

6. $\frac{5a}{a-3} - \frac{15}{a-3}$

7. $\frac{a-1}{3} + \frac{2a-5}{3}$

8. $\frac{y+2}{5} + \frac{4y+8}{5}$

9. $\frac{3x-1}{4} - \frac{x+7}{4}$

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

11. $\frac{4m+7}{6m} + \frac{2m+5}{6m}$

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