

LESSON 8.1 Skills Practice

8

Name _____ Date _____

There Must Be a Rational Explanation

Adding and Subtracting Rational Expressions

Problem Set

Calculate the least common denominator (LCD) for each sum and difference. Describe any restriction(s) for the value of x .

1. $\frac{x}{3} + \frac{x+1}{15}$

The LCD is 3(5), or 15.

No restrictions for x .

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

2. $\frac{7x}{12} + \frac{x-2}{6} - \frac{x^2}{3}$

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

4. $\frac{3}{2x} + \frac{x^2+1}{4x^2+8}$

5. $\frac{3x+4}{x} - \frac{5}{6x} + \frac{9}{2x}$

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

7. $\frac{3x}{x-2} + \frac{x}{2x+4} + \frac{5}{x}$

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

8

LESSON 8.1 Skills Practice

page 2

Calculate each sum and difference. Simplify the answer when possible.

9. $\frac{x}{2} + \frac{7x}{6}$

$$\begin{aligned}\frac{x}{2} + \frac{7x}{6} &= \frac{x(3)}{2(3)} + \frac{7x}{6} \\ &= \frac{3x}{6} + \frac{7x}{6} \\ &= \frac{10x}{6} \\ &= \frac{5x}{3}\end{aligned}$$

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

LESSON 8.1 Skills Practice

page 3

8

Name _____ Date _____

11. $\frac{-2x}{5} - \frac{y}{10} + z$

12. $\frac{x-3}{15} - \frac{x-3}{10}$

8

LESSON 8.1 Skills Practice

page 4

13. $\frac{2x}{7} - \frac{y}{2} + \frac{x+1}{3}$

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

LESSON 8.1 Skills Practice

page 5

8

Name _____ Date _____

15. $\frac{2x}{5} + \frac{2x^2 - 1}{10} - \frac{4x + 1}{6}$

16. $\frac{x + 4}{2} - \frac{x + 5}{3} + \frac{x + 6}{21}$

8

LESSON 8.1 Skills Practice

page 6

Calculate each sum and difference. Describe any restriction(s) for the value of x and simplify the answer when possible.

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

$$\begin{aligned}\frac{3}{x} + \frac{1}{x+1} &= \frac{3(x+1)}{x(x+1)} + \frac{1(x)}{(x+1)(x)} \\ &= \frac{3x+3}{x(x+1)} + \frac{x}{x(x+1)} \\ &= \frac{4x+3}{x(x+1)}; x \neq -1, 0\end{aligned}$$

18. $\frac{2}{x-2} - \frac{5}{x+3}$

LESSON 8.1 Skills Practice

page 7

8

Name _____ Date _____

19. $\frac{x}{2x-1} + \frac{x+2}{x}$

20. $\frac{1}{x+3} - \frac{1}{x-3}$

8

LESSON 8.1 Skills Practice

page 8

21. $\frac{1}{x^2 - 4} - \frac{1}{x - 2}$

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

LESSON 8.1 Skills Practice

page 9

8

Name _____ Date _____

23. $\frac{x+1}{x^2-16} - \frac{x}{x^2+7x+12}$

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

8

LESSON 8.1 Skills Practice

page 10

$$25. \frac{x+1}{x^2-3x-4} + \frac{x-3}{x-2}$$

$$26. \frac{x+2}{2x-2} - \frac{-2x-1}{x^2-4x+3}$$