

Practice 9-5

Adding and Subtracting Rational Expressions

Find the least common multiple of each pair of polynomials.

1. $3x(x + 2)$ and $6x(2x - 3)$
2. $2x^2 - 8x + 8$ and $3x^2 + 27x - 30$
3. $4x^2 + 12x + 9$ and $4x^2 - 9$
4. $2x^2 - 18$ and $5x^3 + 30x^2 + 45x$

Simplify.

5. $\frac{x^2}{5} + \frac{x^2}{5}$
6. $\frac{x^2 - 2}{12} + \frac{x}{6}$
7. $\frac{12}{xy^3} - \frac{9}{xy^3}$
8. $-\frac{2}{n + 4} - \frac{n^2}{n^2 - 16}$
9. $\frac{x}{9} - \frac{2x}{9}$
10. $\frac{2y + 1}{3y} + \frac{5y + 4}{3y}$
11. $\frac{6y - 4}{y^2 - 5} + \frac{3y + 1}{y^2 - 5}$
12. $\frac{6}{5x^2y} + \frac{5}{10xy^2}$
13. $\frac{3}{8x^3y^3} - \frac{1}{4xy}$
14. $\frac{4}{x^2 - 25} + \frac{6}{x^2 + 6x + 5}$
15. $\frac{3}{7x^2y} + \frac{4}{21xy^2}$
16. $\frac{xy - y}{x - 2} - \frac{y}{x + 2}$
17. $\frac{x + 2}{x^2 + 4x + 4} + \frac{2}{x + 2}$
18. $\frac{3}{x^2 - x - 6} + \frac{2}{x^2 + 6x + 5}$
19. $\frac{1}{6x^2 - 11x + 3} + \frac{1}{8x^2 - 18}$
20. $\frac{4}{x^2 - 3x} + \frac{6}{3x - 9}$
21. $\frac{3}{x^2 + 3x - 10} + \frac{1}{x^2 + 6x + 5}$
22. $\frac{3}{x - 9} + 4x$
23. $3 - \frac{1}{x^2 + 5}$
24. $5 + \frac{1}{x^2 - 5x + 6}$
25. $1 + \frac{2x + 7}{3x - 1}$
26. $\frac{2a}{a + 2} + \frac{3a}{a - 2}$
27. $\frac{4c}{c - 3} + \frac{4c}{c + 3}$
28. $\frac{f + 1}{fgh} + \frac{f - 1}{fgh}$
29. $\frac{2 - t}{t - 5} + \frac{2 + t}{t + 5}$
30. $\frac{4r}{r - 2} + \frac{4r}{r + 2}$
31. $\frac{x - y}{x + y} + \frac{y}{x}$
32. $\frac{\frac{2}{x}}{\frac{3}{y}}$
33. $\frac{1 + \frac{2}{x}}{4 - \frac{6}{x}}$
34. $\frac{\frac{1}{x - 2}}{2 + \frac{1}{x}}$
35. $\frac{y}{4y + 8} - \frac{1}{y^2 + 2y}$
36. $\frac{1 + \frac{2}{3}}{\frac{4}{9}}$
37. $\frac{6x^2}{3x - 2} + \frac{5x - 6}{3x - 2}$
38. $\frac{\frac{3}{x + 1}}{\frac{5}{x - 1}}$
39. $\frac{\frac{2}{x} + 6}{\frac{1}{y}}$
40. $\frac{2y}{y^2 - 4y - 12} + \frac{y}{y^2 - 10y + 24}$

41. The total resistance for a parallel circuit is given by

$$\frac{1}{R} = \frac{1}{R_1} + \frac{1}{R_2} + \frac{1}{R_3}.$$

- a. If $R = 1$ ohm, $R_2 = 6$ ohms, and $R_3 = 8$ ohms, find R_1 .
- b. If $R_1 = 3$ ohms, $R_2 = 4$ ohms, and $R_3 = 6$ ohms, find R .