Exercises

GUIDED PRACTICE

1. **Vocabulary** How does a *complex fraction* differ from other types of fractions?

SEE EXAMPLE 1 Add or subtract. Identify any x-values for which the expression is undefined.

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

3. $\dfrac{3x-4}{4x+5} - \dfrac{5x+3}{4x+5}$

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

SEE EXAMPLE 2 Find the least common multiple for each pair.

5. $4x^2y^3$ and $16x^4y$

6. $x^2 - 25$ and $x^2 + 10x + 25$

SEE EXAMPLE 3 Add or subtract. Identify any x-values for which the expression is undefined.

7. $\dfrac{3x-2}{x+6} + \dfrac{2x-3}{2x-1}$

8. $\dfrac{4x-5}{12x+4} + \dfrac{3x-1}{3x+1}$

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

SEE EXAMPLE 4 10. $\dfrac{3x-5}{2x-5} - \dfrac{2x-5}{3x+1}$

11. $\dfrac{2x+8}{x^2-16} - \dfrac{3}{x-4}$

12. $\dfrac{x+2}{x^2+4x+3} - \dfrac{x+1}{x+3}$

SEE EXAMPLE 5 Simplify. Assume that all expressions are defined.

13. $\dfrac{\frac{2x-3}{x-2}}{\frac{4x-3}{x^2-4}}$

14. $\dfrac{\frac{3x-7}{4x+5}}{\frac{6x-1}{5x-6}}$

15. $\dfrac{\frac{2}{x}+\frac{1}{x}}{\frac{2x}{x+2}}$

SEE EXAMPLE 6 16. **Track** Yvette ran at an average speed of 6.20 ft/s during the first two laps of a race and an average speed of 7.75 ft/s during the second two laps of a race. What was Yvette's average speed for the entire race? Round to the nearest tenth.

PRACTICE AND PROBLEM SOLVING

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

17. $\dfrac{2x-3}{4x-7} + \dfrac{2x-3}{4x-7}$

18. $\dfrac{x-5}{3x+4} - \dfrac{3x-5}{3x+4}$

19. $\dfrac{x^2-3}{2x+7} - \dfrac{2x-5}{2x+7}$

Find the least common multiple for each pair.

20. $12x^2y^3$ and $14x^3y^2$

21. $16x^2 - 25$ and $4x^2 - x - 5$

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

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

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

24. $\dfrac{5x}{4x^2} + \dfrac{7}{x+1}$

25. $\dfrac{4x-3}{x^2-9} - \dfrac{2x-3}{x-3}$

26. $\dfrac{x}{2x+3} - \dfrac{2x+1}{2x-3}$

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

Simplify. Assume that all expressions are defined.

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

29. $\dfrac{\frac{3x-2}{x^2-4}}{\frac{5x+1}{x^2+x-6}}$

30. $\dfrac{\frac{x}{x+1}}{x+\frac{x}{3}}$

31. **Chemistry** A solution is heated from 0°C to 100°C. Between 0°C and 50°C, the rate of temperature increase is 1.5°C/min. Between 50°C and 100°C, the rate of temperature increase is 0.4°C/min. What is the average rate of temperature increase during the entire heating process? Round to the nearest tenth.