3.06 *Fractions in Review*

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Congratulations on having completed the skills on fractions. This tends to be a difficult topic for students in that it is quite abstract, and the problems tend to be somewhat long and time consuming. Also, there are many different skills and procedures that are easily confused. Hopefully, you have mastered these skills one at a time. Now, nearing the end of this chapter, it is important to see if you have them all together in a total review of all of these skills. The exercises that follow are presented randomly, and without steps or hints. You may recognize some of them.

EXERCISES.   Perform the indicated operations, reducing all answers to lowest terms.

1. $\dfrac{34}{98} \div \dfrac{85}{35}$

2. $\dfrac{5}{6} - \dfrac{2}{9}$

3. $\dfrac{7}{12} + \dfrac{4}{15}$

4. $\dfrac{35}{12} \cdot \dfrac{8}{15}$

5. $\dfrac{x^2 - 16}{4x + 16}$

6. Solve for x: $\dfrac{x}{x - 2} = \dfrac{4}{5}$

7. $\dfrac{x^2 - 49}{x^2 - 14x + 49}$

8. $\dfrac{x^3 y^2}{6xy + 12x} \div \dfrac{y^3}{y^2 - 4}$

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9. $\quad \dfrac{5}{24y} - \dfrac{8}{9xy^3}$

10. $\quad \dfrac{x^2 - 4x}{16} \bullet \dfrac{4x}{x^2 - 5x + 4}$

In 11 - 12, solve for x.

11. $\quad \dfrac{x(x-1)}{6} + \dfrac{x}{3} = 1$

12. $\quad \dfrac{x}{x+4} = \dfrac{6}{x-4}$

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

14. $\quad \dfrac{5}{x^2 - 10x + 25} - \dfrac{3}{x^2 - 5x}$

15. $\quad \dfrac{8x^2 - 16x}{x^2 - 4x + 4}$

16. Solve for x. $\quad \dfrac{x}{3} - \dfrac{x+2}{2} = 1$

17. $\dfrac{x^2 - 8xy + 16y^2}{x^2 - 3xy - 10y^2} \bullet \dfrac{x^2 - 4y^2}{x^2 - 5xy + 4y^2}$

18. $\dfrac{7}{5xy^2} + \dfrac{8}{45x^4y^3}$

19. $\dfrac{x}{x^2 - 25} + \dfrac{5}{x - 5}$

20. Solve for x. $\dfrac{4}{x + 1} = \dfrac{6}{x + 1}$

21. $\dfrac{9x^2 - 4y^2}{9x^2 - 12xy + 4y^2} \div \dfrac{x^2 - 2xy - 8y^2}{3x^2 - 14xy + 8y^2}$

22. $\dfrac{x(x + 1)}{6} - \dfrac{x}{3} = 1$

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

24. $\dfrac{x^3}{x - 3} - \dfrac{9x}{x - 3}$

25. $\dfrac{x^2-9}{x^2-6x+9} \bullet \dfrac{x^2+5x+6}{(x+3)^2}$

26. Find the LCD for $\dfrac{1}{27}$ and $\dfrac{1}{36}$.

27. $\dfrac{2x}{x^2-4} - \dfrac{3}{x^2+x-6}$

28. $\dfrac{4}{x} = \dfrac{x+2}{2}$

29. $\dfrac{x^2-36}{6-x}$

30. $\dfrac{x^2}{x-8} - \dfrac{64}{x-8}$

31. $\dfrac{a^2bc-3a^2b}{c^2-9}$

32. Find the LCD for

$$\dfrac{1}{x^2-4x} \text{ and } \dfrac{1}{x^2-5x+4}$$

ANSWERS 3.06

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1. $\dfrac{1}{7}$;   **2.** $\dfrac{11}{18}$;   **3.** $\dfrac{17}{20}$;   **4.** $\dfrac{14}{9}$;   **5.** $\dfrac{x-4}{4}$;   **6.** -8;   **7.** $\dfrac{x+7}{x-7}$;   **8.** $\dfrac{x^2(y-2)}{6y}$;

9. $\dfrac{15xy^2-64}{72xy^3}$;   **10.** $\dfrac{x^2}{4(x-1)}$;   **11.** -3,2;   **12.** 12,-2;   **13.** x+2;   **14.** $\dfrac{2x+15}{x(x-5)^2}$;

15. $\dfrac{8x}{x-2}$;   **16.** -12;   **17.** $\dfrac{(x-4y)(x-2y)}{(x-5y)(x-y)}$;   **18.** $\dfrac{63x^3y+8}{45x^4y^3}$;   **19.** $\dfrac{6x+25}{(x-5)(x+5)}$;

20. **No Sol.**;   **21.** $\dfrac{3x+2y}{x+2y}$;   **22.** 3,-2;   **23.** $\dfrac{x^2-8x-12}{(x+3)(x+1)(x-4)}$;   **24.** x(x+3) or x^2+3x;

25. $\dfrac{x+2}{x-3}$;   **26.** 108;   **27.** $\dfrac{2x^2+3x-6}{(x-2)(x+2)(x+3)}$;   **28.** -4,2;   **29.** -(x+6) or -x-6;

30. x+8;   **31.** $\dfrac{a^2b}{c+3}$;   **32.** x(x-4)(x-1).