Chapter 12

Extra Practice: Skills and Word Problems

Lesson 12-1 Identify the asymptotes of each function. Then graph the function.

1. $y = \frac{6}{x}$ **2** $y = \frac{8}{x+2}$ **3.** $y = \frac{4}{x} - 3$ **4.** $y = \frac{5}{x+1} + 3$

5. $y = \frac{5}{x} - 1$ **6.** $y = \frac{2}{x-1}$ **7.** $y = \frac{3}{x} + 4$ **8.** $y = \frac{2}{x+1} - 1$

Lesson 12-2 Simplify each expression.

9. $\frac{4t^2}{16t}$ **10.** $\frac{c-5}{c^2-25}$ **11.** $\frac{4m-12}{m-3}$ **12.** $\frac{a^2+2a-3}{a+3}$

13. $\frac{x+7}{x^2+8x+7}$ **14.** $\frac{t-4}{4-t}$ **15.** $\frac{m^2+7m+10}{m^2+8m+15}$ **16.** $\frac{6b^2+42b}{b^3}$

Lessons 12-3 to 12-5 Simplify each expression.

17. $\frac{4}{x} - \frac{3}{x}$ **18.** $\frac{6t}{5} + \frac{4t}{5}$ **19.** $\frac{6}{c} + \frac{4}{c^2}$

20. $\frac{6}{3d} - \frac{4}{3d}$ **21.** $\frac{5s^4}{10s^3}$ **22.** $\frac{4n^2}{7} \cdot \frac{14}{2n^3}$

23. $\frac{8b^2-4b}{3b^2} \div \frac{2b-1}{9b}$ **24.** $\frac{v^5}{v^3} \cdot \frac{4v^{-1}}{v^2}$ **25.** $\frac{5}{t+4} + \frac{3}{t-4}$

26. $\frac{8}{m^2+6m+5} + \frac{4}{m+1}$ **27.** $\frac{3y}{4y-8} \div \frac{9y}{2y^2-4y}$ **28.** $\frac{4}{d^2} - \frac{3}{d^3}$

Divide.

29. $(2x^3 - x^2 - 13x - 6) \div (x - 3)$ **30.** $(3x^3 - 3) \div (x + 1)$

31. $(3x^3 + 5x^2 - 22x + 24) \div (x + 4)$ **32.** $(3x^3 - 3) \div (x - 1)$

Lesson 12-6 Solve each equation. Check your answer.

33. $\frac{1}{4} + \frac{1}{x} = \frac{3}{8}$ **34.** $\frac{4}{m} - 3 = \frac{2}{m}$ **35.** $\frac{1}{b-3} = \frac{1}{4b}$

36. $\frac{4}{x-1} = \frac{3}{x}$ **37.** $\frac{4}{n} + \frac{5}{9} = 1$ **38.** $\frac{x}{x+2} = \frac{x-3}{x+1}$

39. $t - \frac{8}{t} = \frac{17}{t}$ **40.** $\frac{x+2}{x+5} = \frac{x-4}{x+4}$ **41.** $\frac{1}{5} - \frac{1}{x} = \frac{1}{2}$

42. $\frac{4}{c+1} - \frac{2}{c-1} = \frac{3c+6}{c^2-1}$ **43.** $\frac{4}{m+3} = \frac{6}{m-3}$ **44.** $\frac{4}{t+5} + 1 = \frac{15}{t^2-25}$

Lessons 12-7 and 12-8 Simplify each expression.

45. ${}_6C_4$ **46.** ${}_7P_2$ **47.** ${}_{10}C_5$ **48.** ${}_8C_7$

49. ${}_{12}P_6$ **50.** ${}_9C_7$ **51.** ${}_{10}C_6$ **52.** ${}_{10}P_6$

53. How many four-letter groups can be made with the letters A, B, C, and D if no letter can be repeated?

54. Two people are running for president, three are running for vice-president, and two are running for speaker. How many election results are possible?

55. a. Suppose your bank assigns a four-digit personal identification number for your bank card. The first digit cannot be zero. How many different numbers are possible?

b. What is the probability that the number you are given is 4861?