Answers for 7.1

For use with pages 482–485

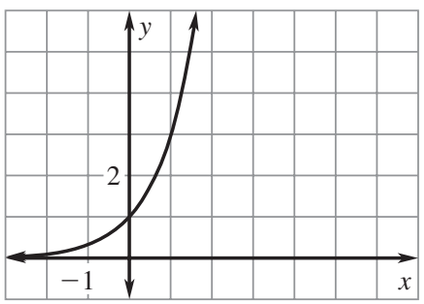
7.1 Skill Practice

1. 2.4, 1.5, 50%

2. An asymptote is a line that a graph approaches very closely but never meets.

3. C **4.** A **5.** B

6.



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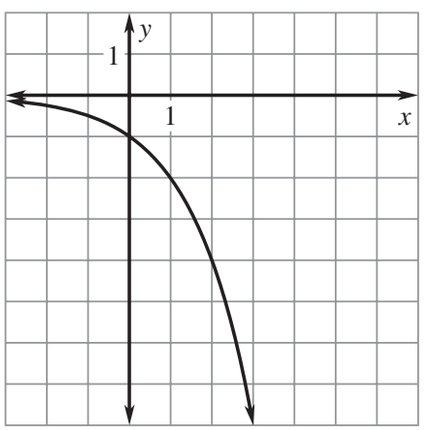

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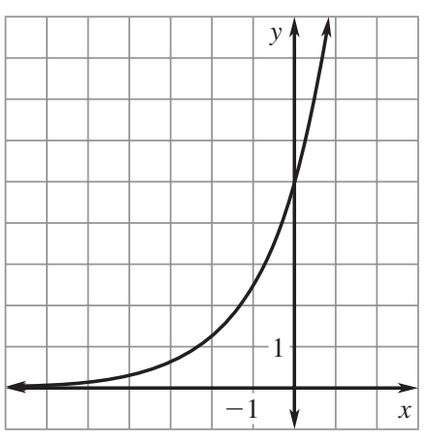

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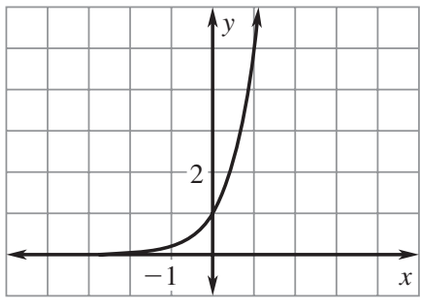

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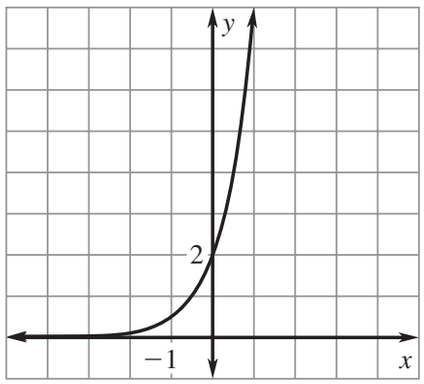

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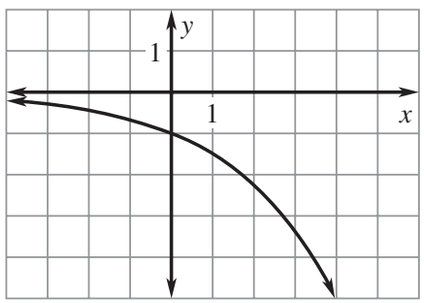

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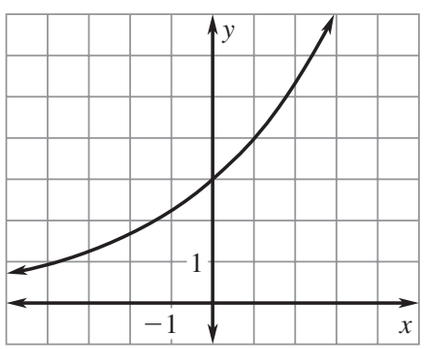

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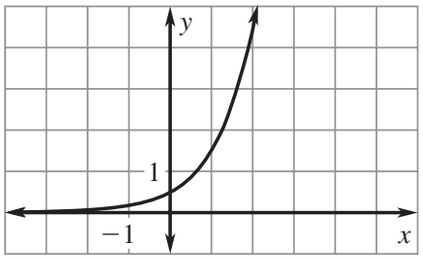
Answers for 7.1 *continued*

For use with pages 482–485

13.



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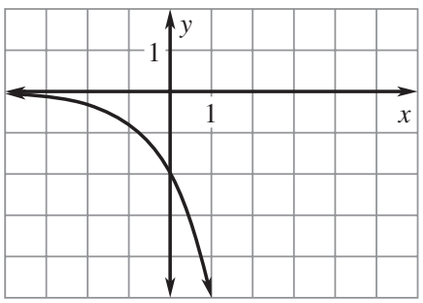

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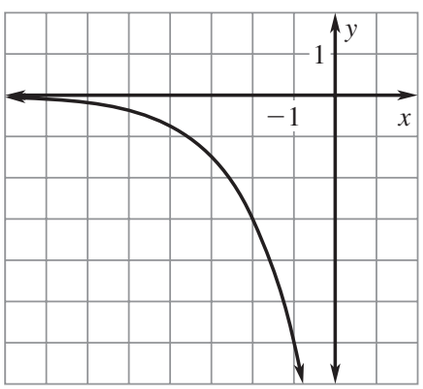
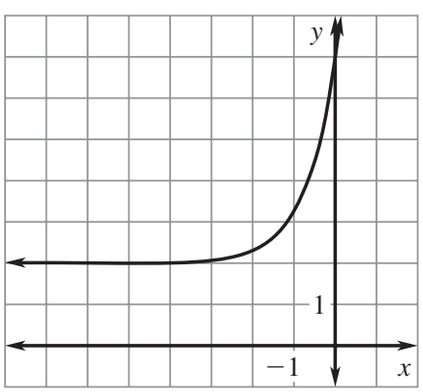


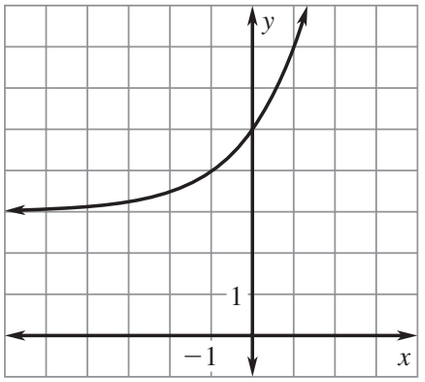
domain: all real numbers,
range: $y < 0$

16.



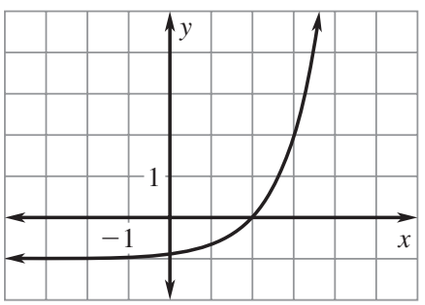
domain: all real numbers,
range: $y > 2$

17.



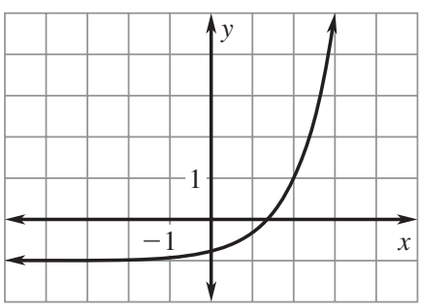
domain: all real numbers,
range: $y > 3$

18.



domain: all real numbers,
range: $y > -1$

19.



domain: all real numbers,
range: $y > -1$

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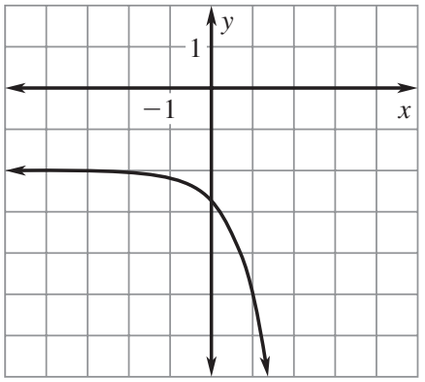
20.



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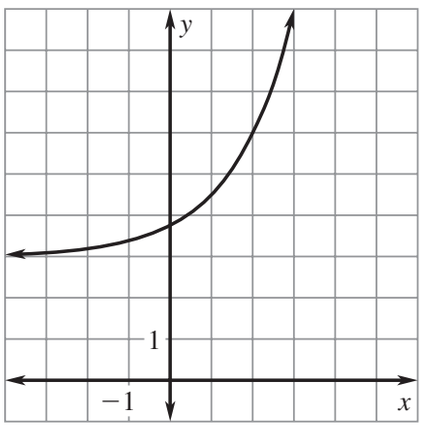
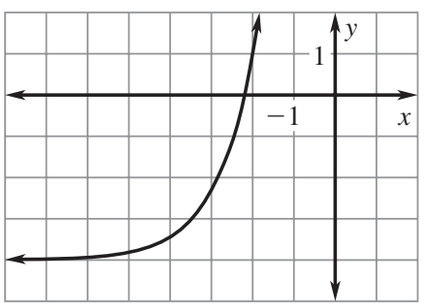
range: $y < -2$

21.



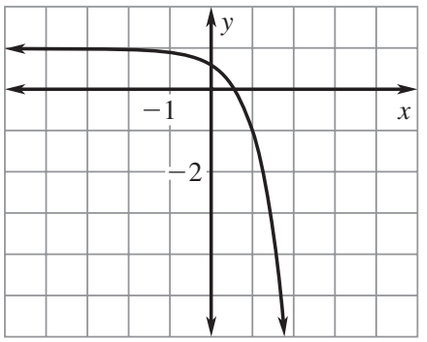
domain: all real numbers,
range: $y > 3$

22.



domain: all real numbers,
range: $y > -4$

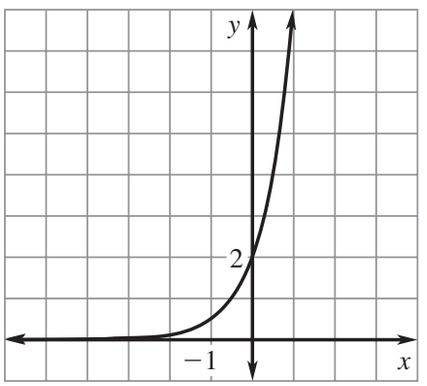
23.



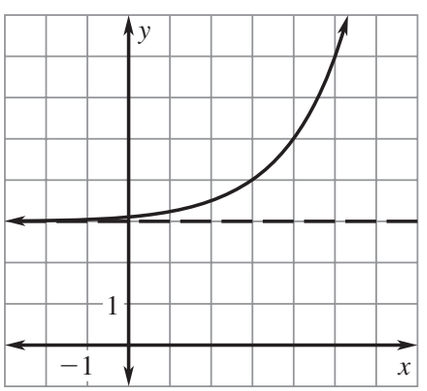
domain: all real numbers,
range: $y < 1$

24. B **25.** D

26. The y-intercept should be (0, 2), not (0, 1).



27. The power of $(x - 3)$ translates the parent graph 3 units to the right, not to the left.



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28. $y = 1219(1.12)^t$, where y represents the number of monk parakeets and t represents the number of years since 1992.

29. $A = 800\left(1 + \frac{0.02}{365}\right)^{365t}$, where A represents the amount in the account after t years.

30. $y = 450(1.06)^t$, where y represents the value of the table after t years.

31. a. \$1844.81

b. 18 yr

32. *Sample answer:* $y = 9 \cdot 3^{x-1} + 2$

33. a. The graph no longer has a vertical stretch of 2.

b. The graph will increase slower.

c. The graph will be translated 3 units to the right instead of 4 units to the left.

d. The graph will be translated 1 unit down instead of 3 units up.

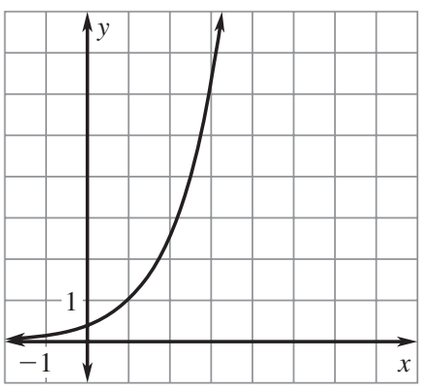
34. a. $\frac{ab^{x+1}}{ab^x} = \frac{b^x b^1}{b^x} = b$

b. *Sample answer:* Since the points (0, 4) and (1, 4) are of the form $f(x)$ and $f(x + 1)$, when $f(x)$ and $f(x + 1)$ are substituted into the equation from part (a), $b = 1$ and therefore the function is no longer exponential.

7.1 Problem Solving

35. a. 0.42 million, 2.47, 147%

b.



about 16 million DVD players

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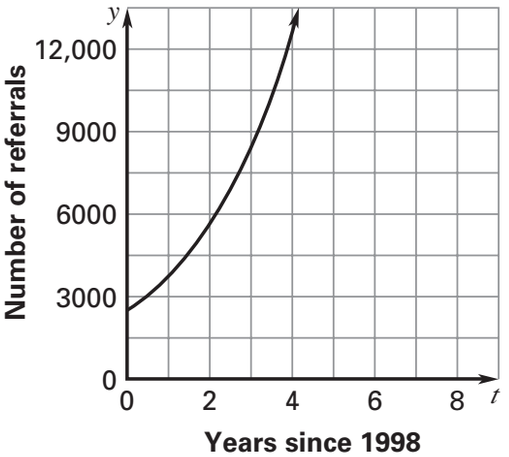
36. a. 2500, 1.50, 50%

b.



domain: $t \geq 0$, range: $y \geq 2500$; about 13,000 referrals

37. a. \$2479.38

b. \$2406.98

c. \$2383.23

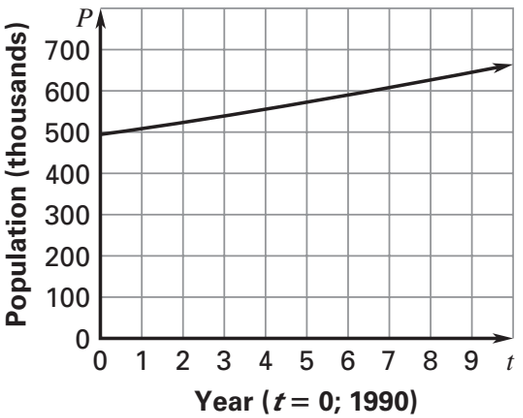
38. a. \$2804.71

b. \$2701.39

c. \$2666.99

39. a. $P = 494.29(1.03)^t$; 664,284 people

b.



domain: $t \geq 0$,
range: $P \geq 494.29$

c. 1996

40. a. $p = 50(1.105)^n$

b. \$82.37; \$1,084,420.72; no. *Sample answer:* This amount is unreasonable because the model is only defined for 6 bids and 100 is out of this domain.

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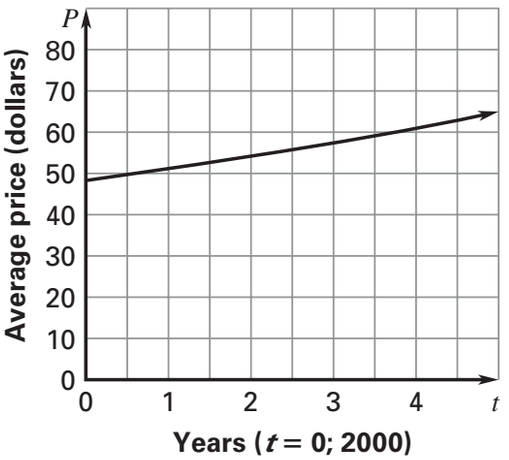
41. a. $p = 48.28(1.06)^t$

b.



2003

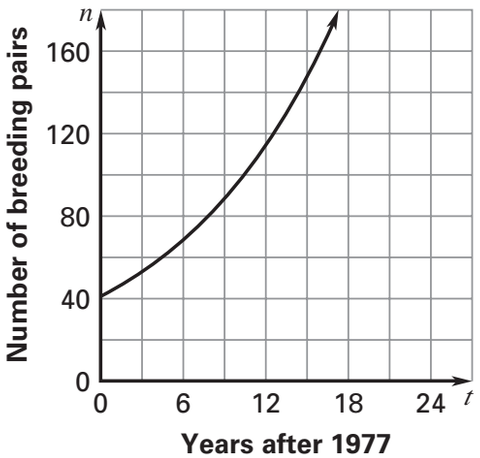
c. *Sample answer:* Since the function is only defined when t is between 0 and 4, you can look at the graph between these values to determine the minimum or maximum that gives meaningful results.

42. a. $n = 41(1.089)^t$

b.

t	*n*
0	41
8	81.097
24	317.29

c.



d. about 317 breeding pairs

43. No. *Sample answer:* The initial amount is all that is equivalent. The first \$6000 amount grows at a faster rate.

44. a. 11.6%

b. \$15,582.79

7.1 Mixed Review

45. 0.216 **46.** 0.16

47. 0.03125 **48.** 0.015625

49. $\frac{1}{16}$ **50.** $\frac{27}{512}$

51. $\frac{16{,}807}{100{,}000}$ **52.** $\frac{64}{125}$

53. $(x + 10)(x - 3)$

54. $(x + 9)(x + 6)$

55. $(2x + 5)(x - 6)$

56. not factorable

57. $(x^2 - 3)(x - 2)$

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58. $(x - 4)(x^2 + 4x + 16)$

59. 5

60. 7

61. $\sqrt[7]{-72}$

62. $-12 \pm \sqrt[4]{52}$

63. $\pm\sqrt[6]{200}$

64. $9 \pm \sqrt[8]{17}$

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