APPLIED FINITE MATHEMATICS
3rd ed 2016 Sekhon/Bloom

Answers to Odd Numbered Homework Problems Sections 5.1, 5.3, 5.5

5.1 1) exponential 3) linear 5) linear 7) power
9) decay 11) growth

13) $y = 127(.7046)^t$ $r = -.2954$ 29.54% annual decay rate

15) $y = 17250(1.2712)^t$ $r = .2712$ 27.12% annual growth rate

17) $y = 350000 + 7000t$ At $t=5$ $y = \$385000$

19) $y = 50000(.94)^t$ At $t=10$ $y = \$26930.76$

21) $y = 200 + 10t$ At $t=7$ $y = 270$

23) $y = 300(.93)^t$ At $t=6$ $y = 194$

25) $y = 400e^{.26t}$ At $t=7$ $y = 2469$

27) $y = 4000e^{-.12t}$ At $t=10$ $y = 1205$

5.3 1) $\log_3 81 = 4$ 3) $\log_5 .04 = -2$

7) $\log_{16} 2 = \frac{1}{4}$ 9) $5^4 = 625$ 9) $11^3 = 1331$

11) $64^{1/3} = 4$ 13) $\log_5 15625 = x$ 15) $5^x = 125$

17) $10^4 = y$ 19) $x = e^{-1}$ or $x = \frac{1}{e}$ (equivalent answers)

21) $x = 5^3$ so $x = 125$ 23) $x = 10^{-3}$ so $x = \frac{1}{1000} = .001$

25) $x = 25^{1/2}$ so $x = \sqrt{25} = 5$

27) $1/3$ 29) 10 31) 1.30103 33) 1.06471

35) 2.58496 37) 25.676548

5.4 #6-11 Matching Graphs

6) $y = 3e^{-.6x}$ 7) $y = \log_2 x$ 8) $y = 3(2^x)$

9) $y = \log_{1/2} x$ 10) $y = 5e^{.8x}$ 11) $y = 5(.4^x)$

5.5 (1) a) $y = 20000(1.05^t)$ b) At $t = 12$, $y = \$35917.13$

c) $y = 30000$ at $t = 211.29$ years

(3) $a = \$55974.33$

(5) $y = 5000$ at $t = 14.5$ years

(7) $y = 100000$ at $t = 2.854$ years

(9) $r = .0227$ 2.27% annual growth rate

(11) $r = -.0543$ 5.43% annual decay rate

(13) (a) $y = 7900(1.603)^t$

(b) $y = 4567e^{-.4005t}$

(c) $y = 18720e^{.38526t}$

(d) $y = 1200(.925)^t$

5.6 Review Problems

① a) $a = \$45503$ b) $t = 9.6$ years c) $\$35202$

② a) $y = 40000(.973)^t$ b) $\$30422$ c) $t = 25.32$ years

③ a) $y = 25000(1.064)^t$ b) $\$86451.51$

④ a) $a = 146512$ b) $t = 16.96$ years c) 188500

⑤ a) 2998 b) $t = 7.2$ years

⑥ a) $r = -.2323$ Hourly decay rate is 23.23%

b) $t = 3.31$ hours c) 36.2 mg

⑦ $r = .165$ Annual growth rate is 16.5%

⑧ @ $y = 375000e^{.11718t}$

ⓑ $y = 5400(1.13542)^t$

ⓒ $y = 230(.53794)^t$

ⓓ $y = 3600e^{-.8675t}$