

A-16 Answers

51. \$260 52. \$1 53. \$321
54. \$47 55. $A > B$ 56. $C < D$

Unit 3E Quick Quiz

1. a 2. a 3. b 4. a 5. c 6. c 7. b 8. c 9. c 10. b

Unit 3E Exercises

5. Makes sense 6. Does not make sense
7. Does not make sense 8. Does not make sense
9. Does not make sense 10. Makes sense
11. a. Josh b. Josh c. Jude
12. a. Justice b. Justice, 270; Jeter, 310 c. Jeter
13. a. New Jersey; Nebraska
b. The percentage of nonwhites is significantly lower in Nebraska than in New Jersey.
14. a. The SAT scores decreased between 1988 and 1998 in all grade average categories.
b. Over all grade average categories, the average SAT score increased between 1988 and 1998.
15. a. Whites: 0.18%; nonwhites: 0.54%; total: 0.19%
b. Whites: 0.16%; nonwhites: 0.34%; total: 0.23%
c. The rate for both whites and nonwhites was higher in New York than in Richmond, yet the overall rate was higher in Richmond than in New York. The percentage of nonwhites was significantly lower in New York than in Richmond.
16. The Gazelles showed more improvement in both categories than the Cheetahs, yet the overall improvement was greater for the Cheetahs than for the Gazelles. The weight trainers comprised 50% of the Gazelles and 65% of the Cheetahs.
17. a. Your work should clearly verify that the numbers are correct.
b. 8.3%, or about 8 in 100
c. 90%, or 9 in 10, which is the accuracy of the test
d. 0.11%, or about 11 in 10,000
18. a. Show the work you did to verify the table entries and incidence rate.
b. 90%
c. 15.5%
d. 84.5%
19. a. Your work should clearly verify the table entries
b. 232 athletes; 36 athletes were users and 196 were non-users; 84.5% were falsely accused.
c. 1768 athletes; 4 athletes were users; 0.2% were wrongly cleared.
20. a. 57 subjects found to be lying; 42 were lying and 15 were telling the truth; 26.3% were wrongly found to be lying.
b. 41 subjects were found to be telling the truth; 32 were telling the truth; 78.0% were correctly found to be truthful.
21. The housing program will get a 1% increase in actual dollars. However, when adjusted for inflation, the program gets a cut.
22. a. Absolute difference = \$12,627; person with income of \$41,000 will save 0.5% of income; person with income of \$530,000 will save 2.4% of income.
b. Absolute difference = \$12,234; couple with income of \$41,000 will save 2.9% of income; couple with income of \$530,000 will save 2.5% of income.
23. a. Spelman had a better record for home games (34.5% vs. 32.1%) and away games (75.0% vs. 73.7%) individually.
b. Morehouse has the better overall average (62.5% vs. 48.9%).
c. Teams are generally rated on their overall record.

24. a. Drug B had the better cure rate for men (98.0% vs. 50.0%) and for women (11.2% vs. 5.0%).
b. Drug A had the better cure rate overall (45.0% vs. 27.0%).
c. Because the drugs had such different effects on men and women, the individual cure rates should be cited and used for evaluating the drugs.
25. a. Show the work you did to verify the incidence and detection rates.
b. 95% of those at risk for HIV test positive; 67.9% of those at risk who test positive have HIV.
c. The chance of the patient having HIV is 67.9%, which is greater than the overall "at risk" incidence rate of 10%.
d. 95% of those in the general population with HIV test positive; 5.4% of those in the general population who test positive have HIV.
e. The chance of the patient having HIV is 5.4%, compared to the overall incidence rate of 0.3%.
26. a. 0.3% b. 11.8% c. 0.07% d. 74.6% e. 98.5%
27. a. Excelsior Airline had the higher on-time percentage in each of the five cities taken individually.
b. Averaged over all five cities, the on-time percentage was 86.7% for Excelsior and 89.1% for Paradise.
c. Excelsior had the higher on-time percentage in the five cities individually, while Paradise had the higher overall on-time percentage.

CHAPTER 4

Unit 4A Quick Quiz

1. a 2. a 3. b 4. c 5. b 6. c 7. a 8. a 9. a 10. c

Unit 4A Exercises

7. Does not make sense 8. Makes sense
9. Makes sense 10. Makes sense
11. Does not make sense 12. Does not make sense
13. \$3100; 72% 14. \$2340; 50%
15. \$1220; 510% 16. \$7720; 7%
17. \$1104; 130% 18. \$2060; 312%
19. \$2204; 176% 20. \$1870; 95%
21. \$11.25 22. \$15.75
23. \$72 24. \$63
25. \$1183.33 26. \$2337.50
27. \$316.67 28. \$708.33
29. \$95.83 30. \$168.33
31. -\$270 32. \$640
33. -\$105 34. \$0
35. Below average 36. Above average
37. At average 38. Below average
39. Above average 40. Above average
41. Old car: \$20,333; new car: \$25,056
42. Old car: \$27,200; new car: \$21,460
43. Buy: \$12,000; lease: \$10,000
44. Buy: \$14,000; lease: \$15,400
45. In-state: \$12,400; out-of-state: \$11,900
46. Concord: \$12,600; Versalia: \$12,200
47. \$2,868,480 more
48. \$1,267,200 less
49. The man earns approximately 29% more per year than the woman, or \$1,635,840 more over 40 years.

50. The man earns approximately 38% more per year than the woman, or \$2,563,200 more over 40 years.
 51. \$3000 (\$1500 cost for the credit hours plus \$1500 you could have earned with the job)
 52. \$330 53. a. \$2300 b. \$2780
 54. \$3850 55. Plan A: \$5800; Plan B: \$4184
 56. a. \$10,150 b. \$10,350 c. \$11,100
 57. About 62 months
 58. Approximately 130 months, or 10.8 years
 59. a. With policy: \$2050; without policy: \$1375
 b. With policy: \$1700; without policy: \$1650
 c. With policy: \$1800; without policy: \$1700
 60. a. \$440/month; 59%
 b. Bus pass is \$20 per month for 9 months; savings are \$420/month.
 61. Plan A: \$20,600; Plan B: \$19,000; Plan C: \$16,400
 62. a. \$6175 b. \$8220
 63–66. Answers will vary.

Unit 4B Quick Quiz

1. b 2. a 3. c 4. a 5. c 6. b 7. a 8. a 9. a 10. c

Unit 4B Exercises

9. Does not make sense 10. Makes sense
 11. Does not make sense 12. Does not make sense
 13. Makes sense 14. Makes sense
 15. 9 16. 81
 17. 32 18. $1/9$
 19. 5 20. 9
 21. $1/4$ 22. $2^8 = 256$
 23. 9 24. 1
 25. 25 26. 35
 27. $x = 20$ 28. $y = 3$
 29. $z = 16$ 30. $x = 4$
 31. $y = 4$ 32. $y = 4$
 33. $z = 4$ 34. $y = -2$
 35. $x = 10$ 36. $s = 1$
 37. $a = -2$ 38. $n = 23$
 39. $q = 40$ 40. $w = -10$
 41. $t = 80$ 42. $x = 3$
 43. $x = \pm 7$ 44. $y = 3$
 45. $x = 10$ or $x = -2$ 46. $p = 27$
 47. $t = \pm 12$ 48. $w = \pm 5$
 49. $u = 2$ 50. $v = 4$
 51. \$1000 52. \$1800
 53. \$3760 54. \$2142
 55.

End of year	Suzanne's annual interest	Suzanne's balance	Derek's annual interest	Derek's balance
1	\$75	\$3075	\$75	\$3075
2	\$75	\$3150	\$77	\$3152
3	\$75	\$3225	\$79	\$3231
4	\$75	\$3300	\$81	\$3312
5	\$75	\$3375	\$83	\$3395

End of year	Ariel's annual interest	Ariel's balance	Travis's annual interest	Travis's balance
1	\$150	\$5150	\$150	\$5150
2	\$150	\$5300	\$155	\$5305
3	\$150	\$5450	\$159	\$5464
4	\$150	\$5600	\$164	\$5628
5	\$150	\$5750	\$169	\$5797

57. \$7401.22 58. \$39,795.78
 59. \$32,967.32 60. \$3716.16
 61. \$15,464.83 62. \$91,591.13
 63. \$6103.97 64. \$4647.31
 65. \$29,045.68 66. \$11,472.21
 67. \$13,240.82 68. \$58,918.54
 69. \$75,472.89 70. \$28,133.20
 71. 4.18% 72. 3.25%
 73. 1.24% 74. 2.27%
 75. 1 year: \$5230.14; 5 years: \$6261.61; 20 years: \$12,298.02; APY = 4.60%
 76. 1 year: \$2062.97; 5 years: \$2335.32; 20 years: \$3717.86; APY = 3.15%
 77. 1 year: \$7322.20; 5 years: \$8766.26; 20 years: \$17,217.22; APY = 4.60%
 78. 1 year: \$3233.65; 5 years: \$4364.97; 20 years: \$13,445.07; APY = 7.79%
 79. 1 year: \$3185.51; 5 years: \$4049.58; 20 years: \$9960.35; APY = 6.18%
 80. 1 year: \$513.68; 5 years: \$572.27; 20 years: \$858.00; APY = 2.74%
 81. \$15,685.31 82. \$17,477.00
 83. \$15,488.10 84. \$18,154.04
 85. \$53,751.97 86. \$52,591.47
 87. \$78,375.20 88. \$71,040.91
 89. After 10 years, Chang has \$705.30; after 30 years, he has \$1403.40. After 10 years, Kio has \$722.52; after 30 years, she has \$1508.74. Kio has \$17.22, or 2.4%, more than Chang after 10 years. Kio has \$105.34, or 7.5%, more than Chang after 30 years.
 90. After 10 years, José has \$2586.61; after 30 years, he has \$7691.46. After 10 years, Marta has \$2611.21; after 30 years, she has \$7912.99. Marta has \$24.60, or 0.95%, more than José after 10 years. Marta has \$221.53, or 2.9%, more than José after 30 years.
 91. Quarterly: 5.41%; monthly: 5.43%; daily: 5.44%
 92. Quarterly: 5.09%; monthly: 5.12%; daily: 5.13%
 93.

Year	Account 1		Account 2	
	Interest	Balance	Interest	Balance
0	—	\$1000	—	\$1000
1	\$55	\$1055	\$57	\$1057
2	\$58	\$1113	\$59	\$1116
3	\$61	\$1174	\$63	\$1179
4	\$65	\$1239	\$67	\$1246
5	\$68	\$1307	\$70	\$1316
6	\$72	\$1379	\$74	\$1390
7	\$76	\$1455	\$79	\$1469
8	\$80	\$1535	\$83	\$1552
9	\$84	\$1619	\$88	\$1640
10	\$89	\$1708	\$93	\$1733

After 10 years, Account 1 has increased in value by \$708, or 70.8%; Account 2 has increased in value by \$733, or 73.3%.

94. a. If there is only one compounding during the year, the balance will increase by the APR after 1 year. Thus, the APY is the APR.
 b. With more than one compounding per year, the APY is always greater than the APR. The APY reflects the cumulative effects of several compoundings during the year. At the end of 1 year, the balance will be greater than if there had been only one compounding.
 c. APY does not depend on the starting principal. It gives the percentage increase in the balance.
 d. The more compoundings during the year, the greater the APY.
95. a. Rosa: \$3649.96, \$6573.37; Julian: \$3190.70, \$6633.24
 b. Rosa: 18%, 54%; Julian 22%, 62%
96. a. Paula: \$5085.00, \$10,446.79; Petra: \$4763.27, \$11,033.48
 b. Paula: 21%, 62%; Petra: 24%, 67%
97. Plan A: \$27,765.29; Plan B: \$28,431.33
98. Answers will vary. 99. 18.9 years
100. 6.0 years 101. 68.1 years
102. a.
- | n | 1 | 4 | 12 | 365 | 500 | 1000 |
|-----|-------|-------|-------|-------|-------|-------|
| APY | 12.00 | 12.55 | 12.68 | 12.75 | 12.75 | 12.75 |
- b. 12.75% c.
- Annual Percentage Yield (APY) with APR = 12%**
-
- d. The APY is higher with continuous compounding than with any other type of compounding.
- e. \$563.75; \$911.06
103. a. \$92,516,718
 b. Yes, the interest alone would be \$76,742,847.
 c. About \$5.8 million per week
104. a. \$600 b. \$300 c. 9%
108. a. 2,176,782,336 b. 1.488864 c. 43.657492
 d. 0.00097656 e. 0.214548
109. a. \$161.05 b. \$8,940,049.24
110. a. \$903.06
 b. \$1603.57; less than double
 c. \$1631.02; less than double
 d. \$1806.11; double
111. a. \$5808.08 b. \$3078.16 c. \$6520.19
112. a. 4.0604% b. 4.0742% c. 4.0808% d. 4.0811%
113. a. 24.5325 b. 1.0672 c. 4.0811%

Unit 4C Quick Quiz

1. b 2. b 3. c 4. b 5. a 6. a 7. b 8. a 9. b 10. c

Unit 4C Exercises

9. Does not make sense 10. Does not make sense
 11. Does not make sense 12. Makes sense
 13. Does not make sense 14. Makes sense
 15. \$912.48 16. \$12,768.11
 17. \$7636.31 18. \$3148.24
 19. \$228,903.02; \$72,000 20. \$213,191.25; \$48,000
 21. \$90,091.51; \$64,800 22. \$66,373.60; \$43,200
 23. \$636.02 24. \$995.51
 25. \$768.38 26. \$1431.85
 27. \$1659.18 28. \$1673.79
 29. 56.7%; 9.4% 30. 56.3%; 2.3%
 31. 73.8%, 2.8% 32. 70.0%; 19.3%
 33. -42.9%; -17.0% 34. -40.0%; -9.7%
 35. 68.0%; 5.3% 36. -78.0%; -14.1%
 37. Stocks: \$400,267; bonds: \$2984; cash: \$756
 38. Stocks: \$13,342; bonds: \$746; cash: \$1260
 39. a. INTC b. \$35.24 c. About \$368 million d. 0.22%
 e. \$108.92 f. \$2.30 g. \$10.85 billion
 40. a. WMT b. \$77.53 c. \$839 million d. 0.35%
 e. \$202.27 f. \$4.42 g. \$13.4 billion
 41. \$8.23 per share; slightly overpriced
 42. \$3.26 per share; slightly overpriced
 43. \$12.16 per share; priced about right
 44. \$31.02 per share; overpriced
 45. Answers will vary.
 46. Answers will vary.
 47. 2.11% 48. 2.38% 49. 5.00%
 50. 3.16% 51. \$40.95 52. \$14.70
 53. \$70.87 54. \$369.00
 55. a. 454.96 shares b. \$5320.41 c. \$6369.27
 56. a. 179.47 shares b. \$3038.71 c. \$4991.91
 57. Yolanda: balance = \$31,056.46; deposits = \$24,000
 Zach: balance = \$30,186.94; deposits = \$24,000
 58. Polly: balance = \$8193.97; deposits = \$6000
 Quint: balance = \$6736.13; deposits = \$4800
 59. Juan: balance = \$65,551.74; deposits = \$48,000
 Maria: balance = \$67,472.11; deposits = \$50,000
 60. George: balance = \$6923.39; deposits = \$4800
 Harvey: balance = \$8818.79; deposits = \$6000
 61. Balance of \$15,848.11 will not be enough.
 62. Balance of \$23,772.17 will not be enough.
 63. Balance of \$29,081.87 will not be enough.
 64. Balance of \$53,457.79 will be enough.
 65. 36.4% per share
 66. -82.2% per share
 67. Total return = 439,900%; annual return = 18.3%; much higher than the average annual return for stocks
 68. \$105,663
 69. a. \$88,548 b. \$66,439
 c. Mitch deposited \$10,000; Bill deposited \$30,000.
 70. Answer should show clearly how the formula is derived.
 77. a. \$51,412.95
 b. \$95,102.64; less than double
 c. \$190,935.64; more than double

78. a. \$24,000 b. Abe: \$87,051.98; Beatrice: \$43,562.74
 79. a. 1.293569 b. +.932424 c. 14.27%

Unit 4D Quick Quiz

1. a 2. a 3. b 4. b 5. c 6. c 7. c 8. b 9. c 10. a

Unit 4D Exercises

7. Makes sense 8. Makes sense
 9. Does not make sense 10. Does not make sense
 11. Makes sense 12. Does not make sense
 13. a. Amount borrowed = \$120,000; APR = 6%;
 number of payments per year = 12; loan term = 15 years;
 payment amount = \$1013
 b. Number of payments = 180; amount paid = \$182,340
 c. Principal = 65.8%; interest = 34.2%
 14. a. Amount borrowed = \$15,000; APR = 9%; number
 of payments per year = 12; loan term = 10 years;
 payment amount = \$190
 b. Number of payments = 120; amount paid = \$22,800
 c. Principal = 65.8%; interest = 34.2%
 15. a. \$716.43 b. \$171,943.44
 c. Principal = 58.2%; interest = 41.8%
 16. a. \$278.66 b. \$33,439.20
 c. Principal = 71.8%; interest = 28.2%
 17. a. \$1796.18 b. \$646,624.80
 c. Principal = 61.9%; interest = 38.1%
 18. a. \$1109.53 b. \$199,715
 c. Principal = 75.1%; interest = 24.9%
 19. a. \$690.58 b. \$124,304.40
 c. Principal = 80.4%; interest = 19.6%
 20. a. \$954.83 b. \$343,738.80
 c. Principal = 58.2%; interest = 41.8%
 21. a. \$313.36 b. \$11,281
 c. Principal = 88.6%; interest = 11.4%
 22. a. \$195.66 b. \$11,740
 c. Principal = 85.2%; interest = 14.8%
 23. a. \$1186.19 b. \$213,514
 c. Principal = 70.3%; interest = 29.7%
 24. a. \$567.79 b. \$204,404
 c. Principal = 48.9%; interest = 51.1%
 25. Monthly payment = \$716.12

End of ...	Interest	Payment toward principal	New principal
Month 1	\$500.00	\$216.12	\$149,783.88
Month 2	\$499.28	\$216.84	\$149,567.04
Month 3	\$498.56	\$217.56	\$149,349.48

26. Monthly payment = \$229.36

End of ...	Interest	Payment toward principal	New principal
Month 1	\$160.00	\$69.36	\$23,930.64
Month 2	\$159.54	\$69.82	\$23,860.82
Month 3	\$159.07	\$70.29	\$23,790.53

27. Monthly payments: \$463.16, \$362.68, \$304.15. You can afford only option 3.
 28. Monthly payments \$180.91, \$127.20, \$101.45. You can afford options 2 and 3.
 29. a. \$916.80 b. \$11,001.60 c. 9.1%
 30. a. \$508.96 b. \$12,215.04 c. 18.1%
 31. a. \$376.76 b. \$13,563.36 c. 26.3%
 32. a. \$935.94 b. \$11,231.28 c. 11.0%
 33.

Month	Payment	Expenses	Interest	New balance
0				\$1200.00
1	\$200	\$75	\$18.00	\$1093.00
2	\$200	\$75	\$16.40	\$984.40
3	\$200	\$75	\$14.77	\$874.17
4	\$200	\$75	\$13.11	\$762.28
5	\$200	\$75	\$11.43	\$648.71
6	\$200	\$75	\$9.73	\$533.44
7	\$200	\$75	\$8.00	\$416.44
8	\$200	\$75	\$6.25	\$297.69
9	\$200	\$75	\$4.47	\$177.16
10	\$200	\$75	\$2.66	\$54.82

A partial 11th payment will pay off the loan.

- 34.

Month	Payment	Expenses	Interest	New balance
0				\$1200.00
1	\$300	\$75	\$18.00	\$993.00
2	\$300	\$75	\$14.90	\$782.90
3	\$300	\$75	\$11.74	\$569.64
4	\$300	\$75	\$8.54	\$353.18
5	\$300	\$75	\$5.30	\$133.48

A partial 6th payment will pay off the loan.

- 35.

Month	Payment	Expenses	Interest	Balance
0				\$300.00
1	\$300	\$175	\$4.50	\$179.50
2	\$150	\$150	\$2.69	\$182.19
3	\$400	\$350	\$2.73	\$134.92
4	\$500	\$450	\$2.02	\$86.94
5	0	\$100	\$1.30	\$188.24
6	\$100	\$100	\$2.82	\$191.06
7	\$200	\$150	\$2.87	\$143.93
8	\$100	\$80	\$2.16	\$126.09

36. a. Interest is \$20 per month.
 b. Interest is \$80 per month.
 37. Option 1: Monthly payment = \$2935.06;
 total payment = \$1,056,621.60.
 Option 2: monthly payment = \$3708.05;
 total payment = \$667,449.00.
 38. Option 1: monthly payment = \$1100.65;
 total payment = \$396,234.00.
 Option 2: monthly payment = \$1348.24;
 total payment = \$242,683.20.

39. Option 1: monthly payment = \$405.24; total payment = \$145,886.40. Option 2: monthly payment = \$530.95; total payment = \$95,571.
40. Option 1: monthly payment = \$1227.92; total payment = \$442,051.20. Option 2: monthly payment = \$1597.83; total payment = \$287,609.40.
41. Choice 1: monthly payment = \$572.90; closing costs = \$1200; Choice 2: monthly payments = \$538.85, closing costs = \$3600
42. Choice 1: monthly payments = \$572.90, closing costs = \$0. Choice 2: monthly payment = \$505.92; closing costs = \$6000.
43. Choice 1: monthly payment = \$608.02; closing costs = \$2400. Choice 2: monthly payment = \$590.33; closing costs = \$4800.
44. Choice 1: monthly payment = \$538.85; closing costs = \$1000. Choice 2: monthly payment = \$505.92; closing costs = \$6300.
45. a. \$269.92 b. \$380.03
c. Total payment for 20-year term = \$64,780.80; total payment for 10-year term = \$45,603.60
46. a. \$463.09 b. \$573.39
c. Total payment for 25-year term = \$138,927.00; total payment for 15-year term = \$103,210.20
47. \$187.50, \$250.00 per month
48. \$187.50, \$218.75 per month
49. \$107,964, \$134,956
50. a. \$1199.10 b. \$1279.79 c. \$431,676 d. \$381,095.60
51. a. \$87.11, \$116.30, \$148.38 b. \$61,397
c. \$326.67, \$58,801
52. a. \$440 b. \$5280 c. \$64.53
53. a. \$100 b. 20% c. 520%
54. a. \$716.43 b. About 17.3 years
55. a. \$8718.46 every year, \$716.43 every month, \$330.43 every two weeks, \$165.17 every week
b. Yearly: \$174,369.20; monthly: \$171,943.20; biweekly: \$171,823.60; weekly: \$171,776.80
64. a. \$95.01 b. Payment decreases to \$67.48.
c. Payment decreases to \$77.73.
65. a. For the first 10 months of the loan:

Month	Interest	Principal	Balance
0			7500.00
1	56.25	38.76	7461.24
2	55.96	39.05	7422.19
3	55.67	39.34	7382.85
4	55.37	39.64	7343.21
5	55.07	39.94	7303.27
6	54.77	40.24	7263.04
7	54.47	40.54	7222.50
8	54.17	40.84	7181.66
9	53.86	41.15	7140.51
10	53.55	41.46	7099.05

- b. Interest = \$56.25; principal = \$38.76
c. Interest = \$0.70; principal = \$94.31

Unit 4E Quick Quiz

1. a 2. c 3. a 4. b 5. b 6. a 7. c 8. a 9. b 10. c

Unit 4E Exercises

11. Does not make sense 12. Does not make sense
13. Makes sense
14. Makes sense (You get a tax benefit from mortgage interest only if you itemize deductions, not if you take the standard deduction.)
15. Makes sense 16. Makes sense
17. Makes sense 18. Makes sense
19. Gross income = \$49,600; adjusted gross income = \$46,100; taxable income = \$35,700
20. Gross income = \$28,495; adjusted gross income = \$28,495; taxable income = \$18,095
21. Gross income = \$93,650; adjusted gross income = \$87,450; taxable income = \$74,350
22. Gross income = \$3,506,200; adjusted gross income = \$3,476,200; taxable income = \$2,801,700
23. Do not itemize; your itemized deductions total \$11,945, which is less than your standard deduction.
24. Do not itemize; your itemized deductions total \$4460, which is less than your standard deduction.
25. Gross income = \$33,550; adjusted gross income = \$33,050; taxable income = \$22,650 (standard deduction)
26. Gross income and adjusted gross income = \$23,700; taxable income = \$13,300 (standard deduction)
27. Gross income and adjusted gross income = \$33,900; taxable income = \$15,400 (standard deduction)
28. Gross income = \$78,950; adjusted gross income = \$75,710; taxable income = \$46,810 (standard deduction)
29. \$4844 30. \$13,353 31. \$15,086
32. \$3104 33. \$15,578 34. \$7503
35. \$15,853 36. \$29,684 37. \$500
38. \$1500 39. \$0 40. \$150
41. \$280 42. \$396
43. Cheaper to own (home cost including amount saved through mortgage interest deduction is \$1406, which is less than the rent of \$1600)
44. Cheaper to own (home cost including amount saved through mortgage interest deduction is \$507, which is less than the rent of \$600)
45. Maria's true cost = \$6700; Steven's true cost = \$8500
46. Yolanna's true cost = \$2600; Alia's true cost = \$3600
47. FICA tax = \$2142; income tax = \$2174; total tax = \$4316; tax rate = 15.4%
48. FICA tax = \$2639; income tax = \$3261; total tax = \$5900; tax rate = 16.7%
49. FICA tax = \$3427; income tax = \$4881; total tax = \$8308; tax rate = 18.0%
50. FICA tax = \$9774; income tax = \$27,772; total tax = \$37,546; tax rate = 27.9%
51. FICA tax = \$3687; income tax = \$5204; total tax = \$8891; tax rate = 18.4%

52. FICA tax = \$1622; income tax = \$1154;
total tax = \$2776; tax rate = 13.1%
53. Pierre: FICA tax = \$9180; income tax = \$23,670;
total tax = \$32,850; tax rate = 27.4%.
Katarina: FICA tax = \$0; income tax = \$10,748;
total tax = \$10,748; tax rate = 9.0%.
54. Deion: FICA tax = \$4590; income tax = \$8139;
total tax = \$12,729; tax rate = 21.2%.
Josephina: FICA tax = \$0; income tax = \$1748;
total tax = \$1748; tax rate = 2.9%.
55. Your take-home pay decreases by \$340, rather than by \$400.
56. Your take-home pay decreases by \$450, rather than by \$600.
57. Your take-home pay decreases by \$600, rather than by \$800.
58. Your take-home pay decreases by \$576, rather than by \$800.
59. Total tax at single rate = \$31,028; total tax at
married rate = \$31,181; marriage penalty
60. Total tax at single rate = \$5233; total tax at
married rate = \$5233; no marriage penalty
61. Total tax at single rate = \$83,740; total tax at
married rate = \$90,453; marriage penalty
62. Total tax at single rate = \$14,389; total tax at
married rate = \$8698; no marriage penalty
63. a. Deirdre: \$6885; Robert: \$6885; Jessica and Frank: \$13,770
b. Deirdre: \$22,524; Robert: \$18,263; Jessica and Frank:
\$45,221
c. Deirdre: 25.0%; Robert: 20.3%; Jessica and Frank: 25.1%
d. In order of increasing tax rates: Serena, Robert, Deirdre,
Jessica and Frank
e. Serena receives by far the greatest tax break because her
income is from investments.
64. a. Secretary's 2017 tax rate = 28.4%. For 2017, Buffett's rate
was lower by 4.6 percentage points. For 2012, Buffett's
rate was lower by 13.4 percentage points.
b. Waitress's 2017 tax rate = 13.4%. For 2017, Buffett's rate
was higher, by 10.4 percentage points. For 2012, Buffett's
rate was higher by 1.6 percentage points.
c. Teacher's 2017 tax rate = 20.4%. For 2017, Buffett's rate
was higher by 3.4 percentage points. For 2012, Buffett's
rate was lower by 5.4 percentage points.
d. Businesswoman's 2017 tax rate = 34.3%. For 2017,
Buffett's rate was lower by 10.5 percentage points. For
2012, Buffett's rate was lower by 19.3 percentage points.
65. a. 62.3%; 5.6% b. 2.7%; 51.6%
66. a. 84.0%; 20.5% b. 16.0%; 79.4%
- c. \$69,000
d. Outlays = \$869,000; surplus = \$231,000;
debt = \$605,000
18. a. \$63,000
b. Outlays = \$1,413,000; deficit = \$438,000;
debt = \$1,211,000
c. \$99,000
d. Outlays = \$1,239,000; deficit = \$189,000;
debt = \$1,400,000
19. \$125,000 per worker
20. \$169,000 per household
21. 2000: surplus, 2.3%; debt, 55.4%. 2010: deficit, -8.7%;
debt, 91.9%
22. 142.9%; about 66%
23. 2010: 8.7%; 2020: 2.5%; -71.2%
24. 2010: 91.9%; 2020: 102.7%; 11.8%
25. \$383 billion; interest payment increases to \$495 billion,
or 29.4%.
26. \$408 billion; interest payment increases to \$648 billion,
or 58.8%.
27. \$1.62 trillion; \$1.09 trillion
28. \$1.21 trillion; \$2.68 trillion
29. Revenue increases by \$66.2 billion; spending increases by
\$62.2 billion; deficit decreases
30. Revenue increases by \$66.2 billion; spending increases by
\$77.8 billion; deficit increases
31. a. \$1.48 trillion b. \$1.21 trillion c. \$77.8 billion; 6.4%
32. a. \$622 billion b. \$148 billion; 23.8%
33. \$140 billion deficit 34. \$165 billion deficit
35. Cut government spending, borrow money, raise taxes
36. Cut government spending, borrow money, raise taxes
37. About 634,000 years
38. Area covered by \$1 bills = 0.2 million km²; about 2% of the
total land area of the United States
39. \$22.1 trillion; \$32.9 trillion
40. \$24.38 trillion; \$ 53.8 trillion
41. \$1.70 trillion/yr
42. \$1.13 trillion/yr
43. About 2360 years
44. About \$2462/person per year

CHAPTER 5

Unit 5A Quick Quiz

1. a 2. c 3. a 4. c 5. b 6. c 7. a 8. c 9. b 10. b

Unit 5A Exercises

9. Does not make sense 10. Makes sense
11. Does not make sense 12. Makes sense
13. Does not make sense 14. Makes sense
15. Population: all Americans; sample: 1001 Americans surveyed
by telephone; population parameters: opinions of all Ameri-
cans on the plan; sample statistics: opinions on the plan
among those in the sample
16. Population: all Americans; sample: 998 randomly selected
Americans; population parameter: opinion of all Americans on

Unit 4F Quick Quiz

1. b 2. c 3. a 4. b 5. a 6. a 7. b 8. b 9. b 10. c

Unit 4F Exercises

9. Makes sense 10. Does not make sense
11. Does not make sense 12. Makes sense
13. Does not make sense 14. Does not make sense
15. a. Surplus b. Reduces your surplus c. Yes
16. a. Surplus b. No c. Yes
17. a. \$63,000
b. Outlays = \$1,113,000; deficit = \$63,000;
debt = \$836,000