Chapter 8 BLM Answers

Prerequisite Skills

1. a) \$150 **b)** \$34.62 **c)** \$4.93
2. a) \$36 000 **b)** \$180 000 **c)** \$360 000 **d)** \$1 080 000
3. a) less than 1 **b)** greater than 1
c) greater than 1 **d)** less than 1
e) equal to 1 **f)** greater than 1
4. a) 0.98 **b)** 3 901 844.23 **c)** 1.56
d) 0.04 **e)** 1 **f)** 10
5. a) Sketches may vary.

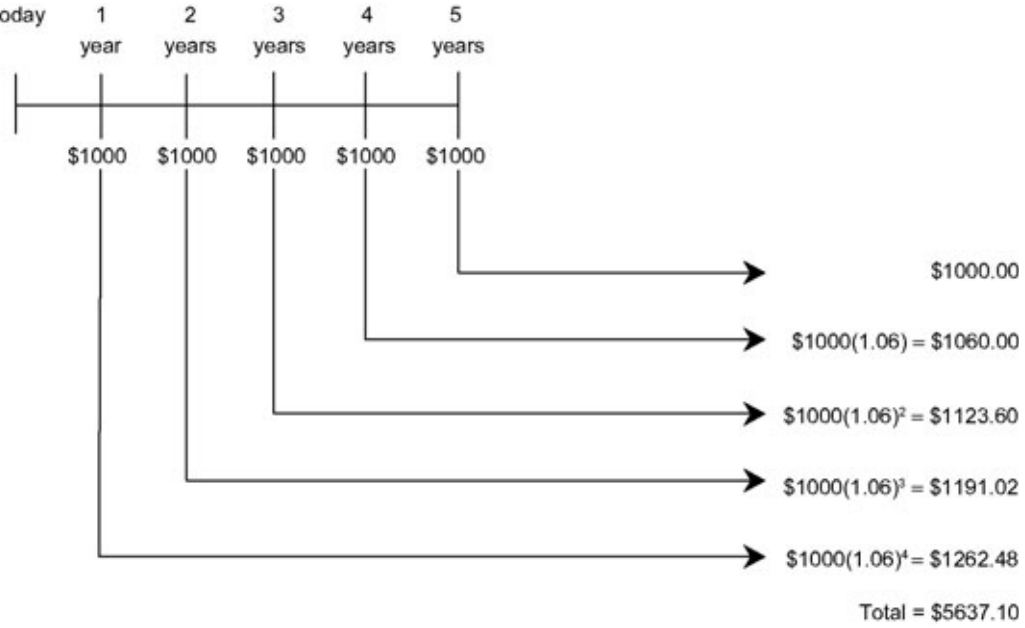
x	$f(x) = 0.4^x$	$g(x) = 4^x$
–3	15.625	0.015 625
–2	6.250	0.062 500
–1	2.500	0.250 000
0	1.000	1.000 000
1	0.400	4.000 000
2	0.160	16.000 000
3	0.064	64.000 000

b) i) $g(x)$ **ii)** $f(x)$ **iii)** $g(x)$ **iv)** $f(x)$

6. a) Sketches may vary.
b) $x = 0$ and $x = 1$
c) Answers may vary. For example, $f(–20) = 0$, and $g(–20)$ must be greater than 0 since $g(x)$ is an exponential function with no x-intercept.
7. a) \$900.00 **b)** \$6.16 **c)** \$530 **d)** \$365.63
8. a) $i = 0.002\,500$; $n = 48$ **b)** $i = 0.000\,021$; $n = 730$
c) $i = 0.000\,865$; $n = 52$ **d)** $i = 0.005\,375$; $n = 12$
9. a) \$845.50 **b)** \$304.53
c) \$4184.03 **d)** \$1919.59
10. a) \$1383.32 **b)** \$19 324.86

Section 8.1 Future Value of an Ordinary Simple Annuity

1., 2. i)



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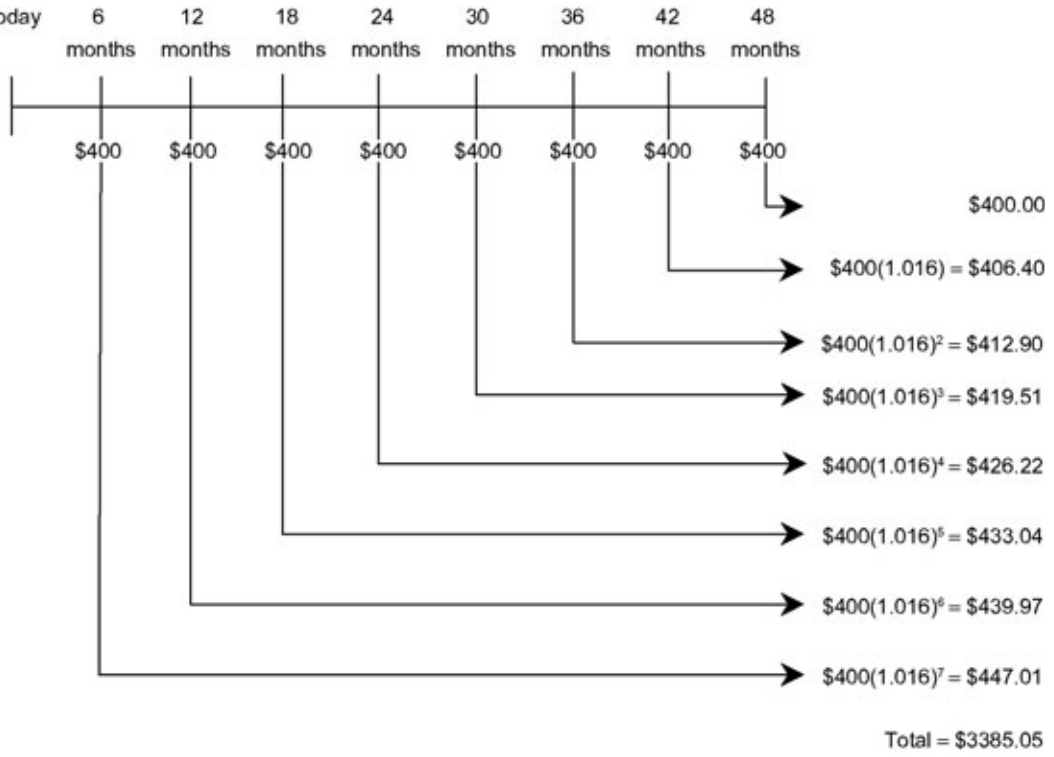
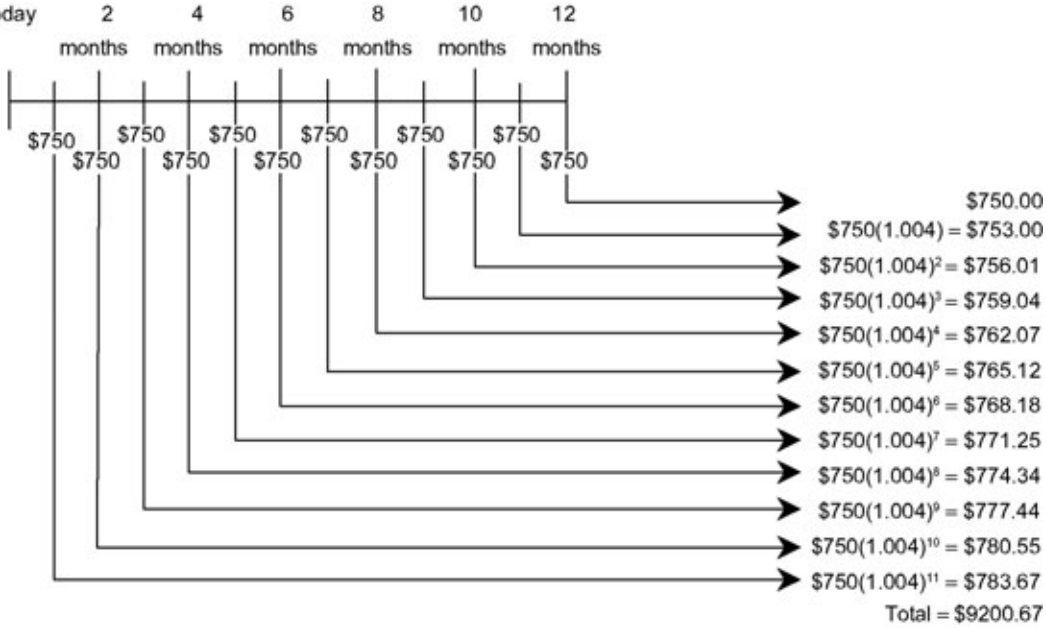
ii)



iii)



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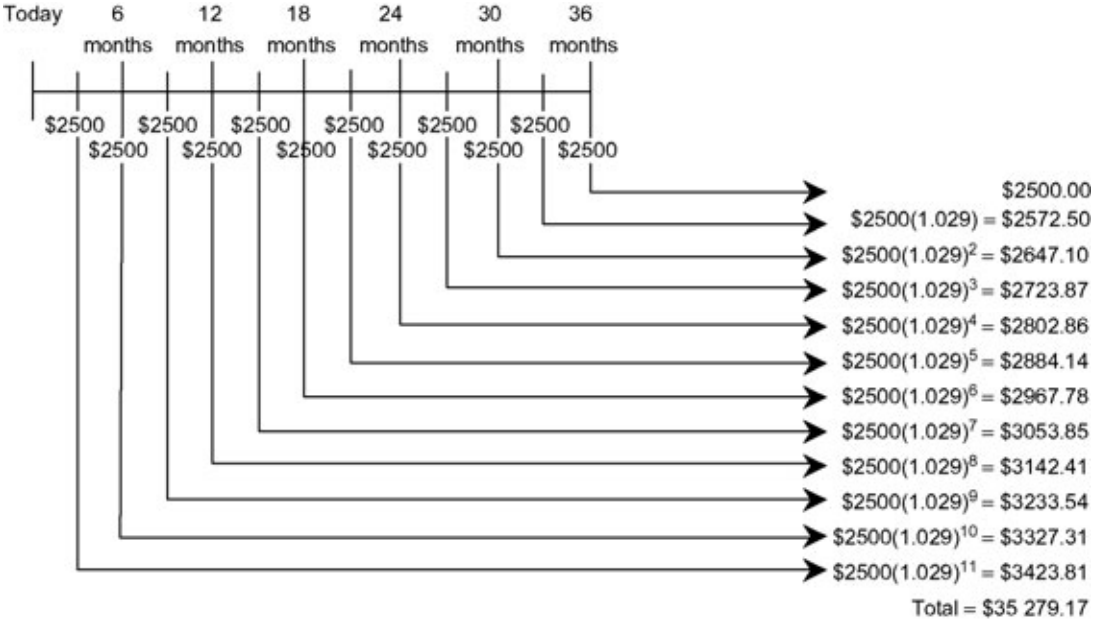
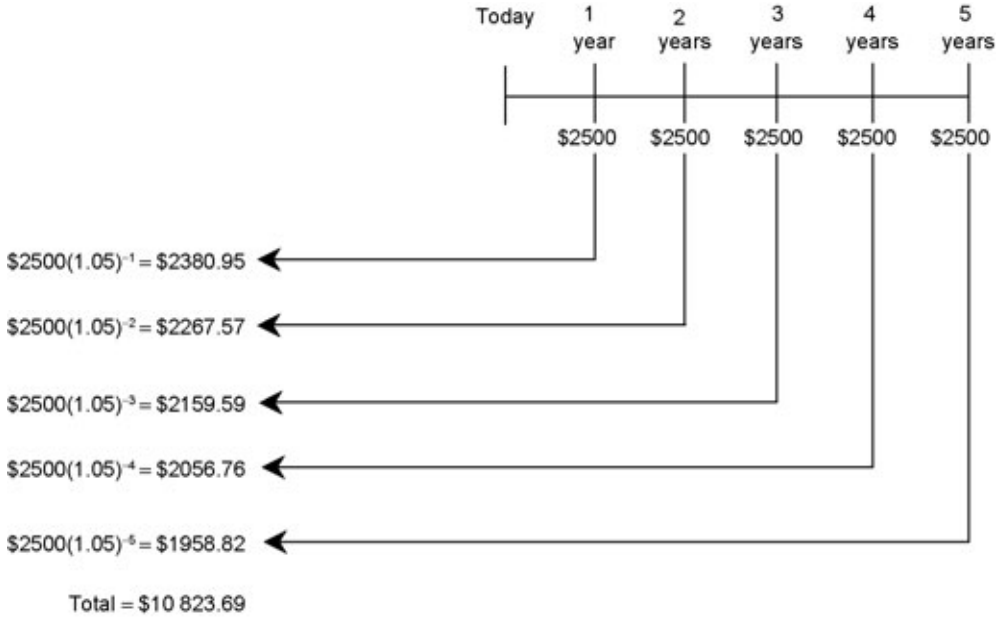
iv)



3. a) i) PMT: 1000, *i*: 0.06, *n*: 5
ii) PMT: 400, *i*: 0.016, *n*: 8
iii) PMT: $750, *i*: 0.004, *n*: 12
iv) PMT: $2500, *i*: 0.029, *n*: 12
b) i) $5637.09 **ii)** $3385.05
iii) $9200.66 **iv)** $35 279.18
4. a) i) $7674.31 **ii)** $32 421.27
iii) $10 483.34
5. a) $3048.60
b) Yes; Explanations may vary. For example, Micah will earn double the interest if his monthly payment is doubled.
c) $6097.19
6. a) $1633.50 **b)** $22 680.91 **c)** $37 942.15
7. a) 9th birthday: $3939.69; 18th birthday: $10318.42
b) $6300 **c)** $4018.42 **d)** $10 885.93 **e)** $567.51
8. $2786.74
9. 23 months

Section 8.2 Present Value of an Ordinary Simple Annuity

1., 2. a)



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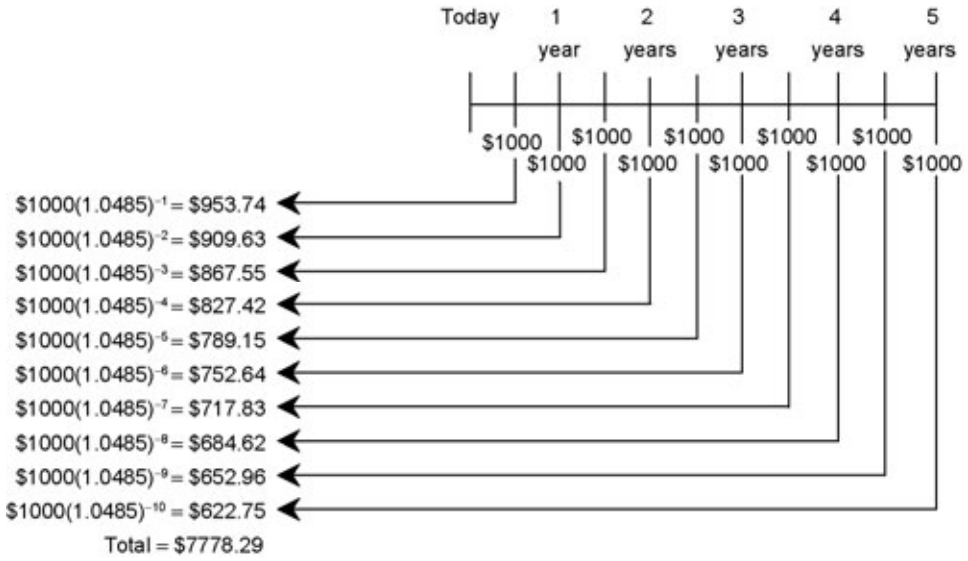
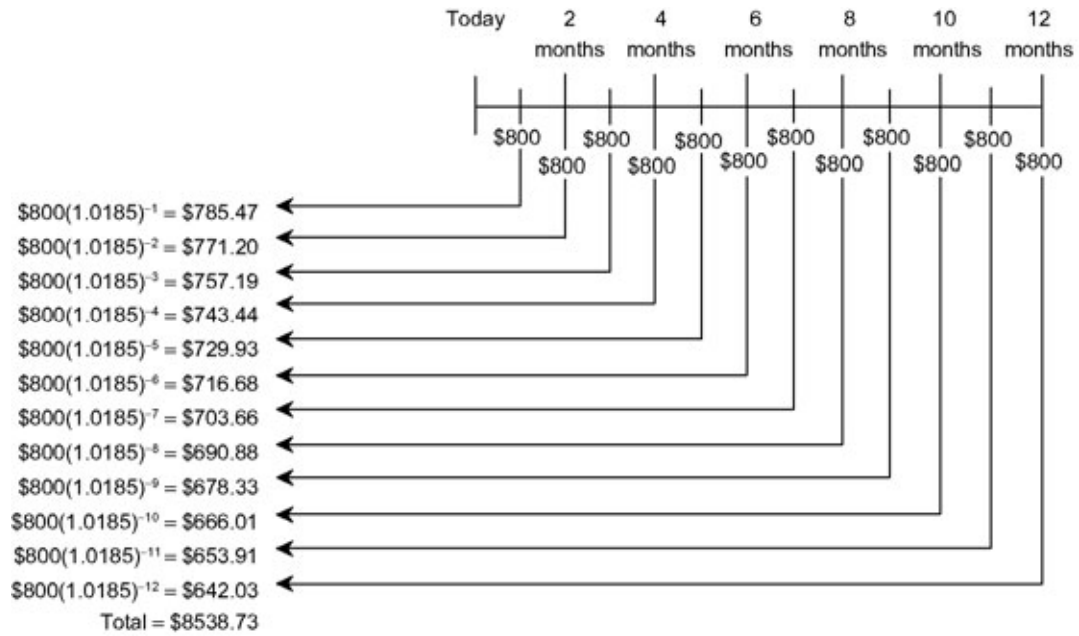
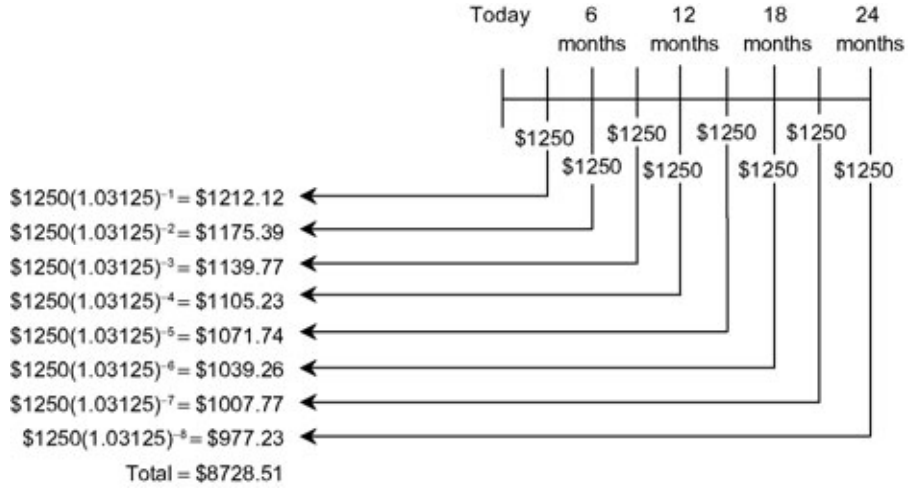
b)



c)



d)



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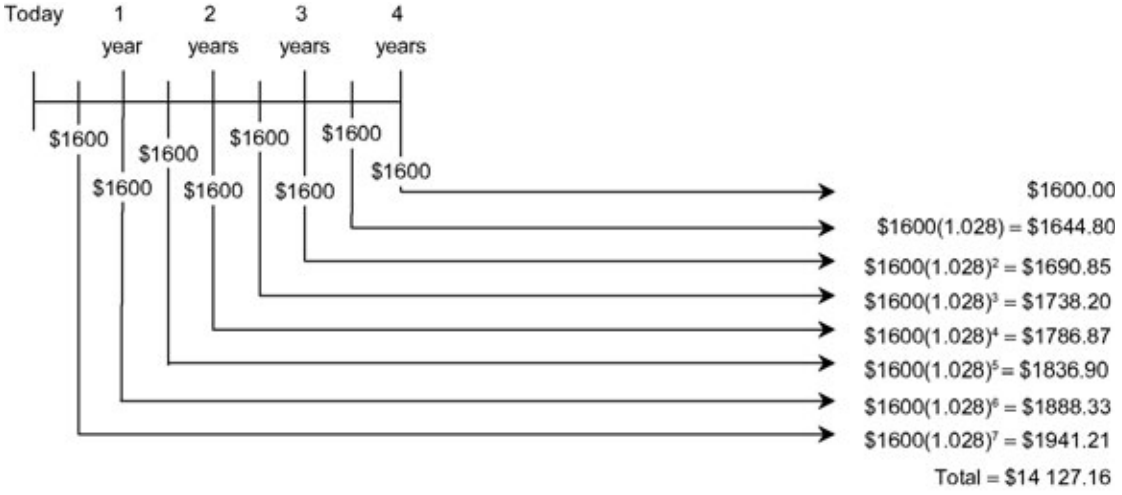
3. a) i) PMT: 2500, i: 0.05, n: 5
ii) PMT: 1000, i: 0.0485, n: 10
iii) PMT: 800, i: 0.0185, n: 12
iv) PMT: 1250, i: 0.03125, n: 8
b) i) $10 823.69 **ii)** $7778.29
iii) $8538.74 **iv)** $8728.53
4. a) i) $9797.43 **ii)** $98 355.32
iii) $52 758.91
5. a) $488 801.22 **b)** $973 124.36
6. a) $3088.56 **b)** $2800.01 **c)** $288.55
7. $5337.39
8. a) $8325.64 **b)** $1562.36 **c)** $112.66
9. a) $363.28 **b)** $8718.72

Section 8.3 Payments and Total Interest

1. i) PV: 30 000, i: 0.05, n: 6
ii) PV: 2500, i: 0.038, n: 4
iii) PV: 21 000, i: 0.0055, n: 60
iv) PV: 1650, i: 0.0075, n: 24
2. a) i) $5910.52 **ii)** $685.48
iii) $411.87 **iv)** $75.38
3. a) $\text{PMT} = \text{FV}\left[\dfrac{i}{(1+i)^n - 1}\right]$
b) $1864.81 **c)** $183.61
4. a) $21 900 **b)** $60 804
c) $5661.28 **d)** $488 404.80
5. a) $249 **b)** $3048
c) $317 **d)** $160 996.80
6. a) $1661.03 **b)** $392 211.04
7. a) $194.55 **b)** $9338.40 **c)** $1338.40

Chapter 8 Review

1. a), b)



c) $14 127.16
d) $14 127.16
2. a) i) $18 362.92 **ii)** $2329.43 **iii)** $57 983.74
8. a) first truck: $556.35; second truck: $562.99
b) first loan: $33 381.00; second loan: $33 779.40; the first truck will cost less
c) first loan: $1481.00; second loan: $5279.40
d) a lease; $441 less
9. a) $95.07 **b)** $2158.18
10. a) $1446.18 **b)** $260 312.40
c) $91 312.40 **d)** $235 958.95 **e)** 20 years

Section 8.4 Effects of Changing the Conditions on an Ordinary Simple Annuity

1. a) $437.26 **b)** $228.42 **c)** $103.79 **d)** $63.34
2. a) $247.12 **b)** $482.08 **c)** $1227.40 **d)** $2600.80
3. a) 221 months **b)** 82 months
c) 51 months **d)** 37 months
4. a) $326.72 **b)** $336.24 **c)** $345.92 **d)** $355.76
5. a) $2703.20 **b)** $3274.40 **c)** $3855.20 **d)** $4445.60
6. a) Plan 2 **b)** $7.55
7. a) i) $605 967.71 **ii)** $370 925.47
b) $240 000
c) i) $365 967.71 **ii)** $130 925.47
8. a) $1680.54; $604 994.40
b) $2360.91; $424 963.80
c) $14 344.99; $430 349.70
d) $1088.18; $424 390.20
e) $180 604.20
9. a) $300.14 **b)** $7203.36
c) $20 706.29 **d)** $8107.13 **e)** $55.36
10. a 6-year loan

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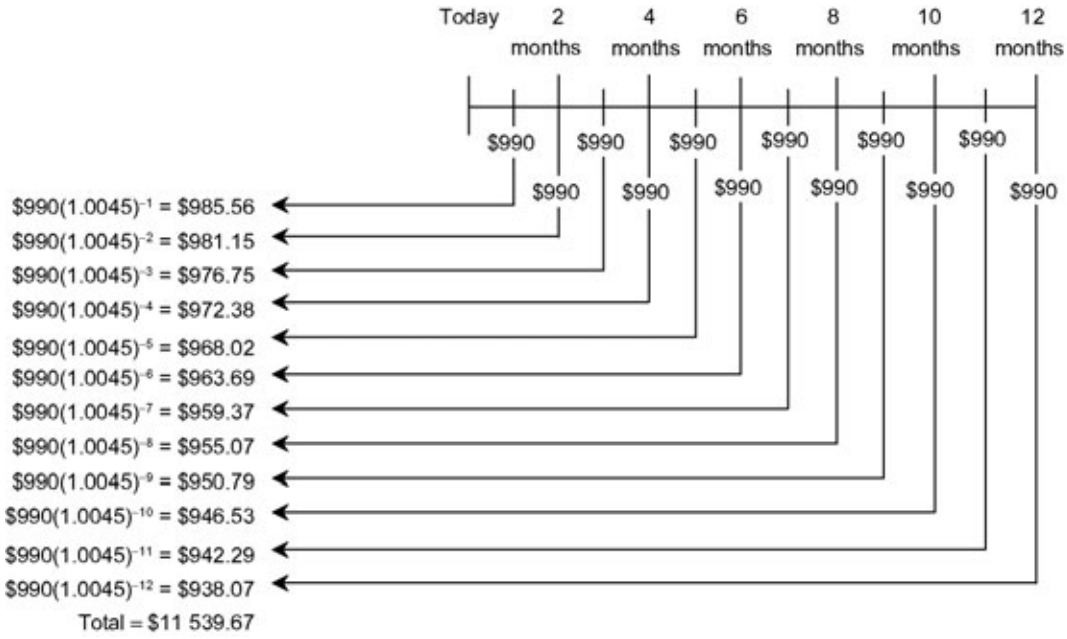
3. a), b)



c) $11 539.69
d) $11 539.69

4. a) i) $29 347.84 **ii)** $96 557.49 **iii)** $24 593.50

5. a) PV: 8000, *i*: 0.0225, *n*: 8
b) PV: 17 500, *i*: 0.005 625, *n*: 60

6. a) $1103.88 **b)** $344.46

7. a) $831.04 **b)** $3167.60

8. a) $315.15 **b) i)** $18 909 **ii)** $2091

9. a) i) $211.24 **ii)** $130.77
b) i) $2674.40 **ii)** $5692.40

10. a) i) $16 229.35 **ii)** $18 424.28
iii) $21 015.02 **iv)** $24 081.85
b) $14 400
c) i) $1829.35 **ii)** $4024.28
iii) $6615.02 **iv)** $9681.85

11. a) $798.27 **b)** $28 737.72
c) $17 578.96 **d)** $1579.52

Chapter 8 Practice Test

1. D **2.** B **3.** C **4.** C

5. $3105.01

6. $593 128.36

7. a) $386.16 **b)** $23 169.6
c) $4169.60 **d)** $8430.40

8. a) $858 084.17 **b)** $1 440 000 **c)** $581 915.83

9. a) $2361.62 **b)** $850 183.20
c) $3207.91 **d)** $577 423.80
e) i) $560 868.27 **ii)** $873 814.49

10. $1136.77

Chapter 8 Test

1. C **2.** D **3.** B **4.** C

5. $158.66

6. a) i) $482.94 **ii)** $236.77 **iii)** $154.75
b) i) $104.72 **ii)** $217.52 **iii)** $329.00

7. $830.07

8. $626 736.09

9. a) $185.38 **b)** $4449.12 **c)** $7557.37
d) $1340.87 **e)** more interest

10. a) $6461.54 **b)** $258 461.60 **c)** $72 648.91

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