24) Discount = 2149 − 1360 = $789.00

$$\text{Rate} = \frac{789.00}{2149.00} = 36.715\%$$

ID: cbm8h 5-3
Diff: 1   Page Ref: pgs 179–182

25) 33.5% of list = $54.72

      .335L = 54.72

          L = $163.34

Sale price = 163.34 − 54.72 = $108.62

ID: cbm8h 5-6
Diff: 2   Page Ref: pgs 179–182

26) 114.54 = L(1 − 0.17)

      0.83L = 114.54

          L = $138.00

ID: cbm8h 5-8
Diff: 1   Page Ref: pgs 179–182

27) .83L = 84.62

      L = $101.95

ID: cbm8h 5-13
Diff: 2   Page Ref: pgs 179–182

28) Allow the 3% discount

Gross reduction in debt = 6200 − 4760 = 1440.00

Amount paid = (0.97)(1440.00) = $1396.80

ID: cbm8h 5-18
Diff: 2   Page Ref:

29) Allow 5% discount on partial payment of $842.00

Amount paid = (0.95)(842.00) = $799.90

ID: cbm8h 5-22
Diff: 2   Page Ref: pgs 193–194

30) C + 1.13C = 4230.00

      2.13C = 4230.00

      Cost = $1985.92

ID: cbm8h 5-26
Diff: 2   Page Ref: pgs 201–203

31) selling price = cost + markup

S = 108.50 + 0.40(108.50)

S = 108.50 + 43.40

S = 151.90

ID: cbm8h 5-27
Diff: 2   Page Ref: pgs 201–203

32) Cost + markup = selling price

1420.00 + .59S = S

      1420 = .41S

      $3463.41 = S

The selling price is $3463.41

ID: cbm8h 5-29
Diff: 2   Page Ref: pgs 201–203

33) Twenty percent of selling price = 181.00

Selling price $= \dfrac{181}{.225} = \$804.44$

Cost = 804.44 – 181.00 = \$623.44

ID: cbm8h 5-31
Diff: 2   Page Ref: pgs 201–203

34) Cost = .66(69.00) = \$45.54
S = 45.54 + .56C + .625C
S = 1.815C
S = 1.815(45.54)
Selling price should be \$82.66.

ID: cbm8h 5-33
Diff: 2   Page Ref: pgs 201–203

35) Markdown = 455 – 395 = 60.00

Rate of discount $= \dfrac{60.00}{455.00} = .13187 = $ ~~13.1818~~   13.19%

ID: cbm8h 5-40
Diff: 2   Page Ref: pgs 206–209

36) Cost = 54.10(.88) = \$47.61
47.61 + .51S = S
47.61 = .49S
\$97.16 = S
Regular selling price – discount = S
R – .25 of R = S
.75R = \$97.16
R = \$129.55

ID: cbm8h 5-43
Diff: 3   Page Ref: pgs 201–203

37) Regular selling price = C + E + P
= 59.23 + .14R + .11R
R = 59.23 + .25R
.75R = 59.23
R = \$78.97
Sale price = .83(78.97) = 65.55
Total cost = 59.23 + .14(78.97)
= 59.23 + 11.06
= \$70.29   –4.74
Profit = 65.55 – 70.29 = ~~(N/A)~~

ID: cbm8h 5-46
Diff: 3   Page Ref: pgs 197–200

38) discount = 149.99 – 79.99 = 70.00

Rate of discount $= \dfrac{70.00}{149.99} = .466697 = 46.67\%$

ID: cbm8h 5-54
Diff: 1   Page Ref: pgs 179–182

39) Cost = (.744)97.00 = $72.168

    Regular selling price = 72.168 + .25R

                    .75R = 72.168

                       R = $96.224

    New regular selling price - discount = R

    N - .2N = 96.224

       .8N = 96.224

        N = $120.28

    New regular selling price is $120.28

    ID: cbm8h 5-67

    Diff: 3   Page Ref: pgs 206-209

40) Store's net price = 127.00(1 - .125)(1 - .115) = 98.35

    Competitor's price = 137.00(1-.155) = 115.77

    Additional discount needed = 115.77 - 98.35 = 17.42

    Additional percent discount $= \dfrac{17.42}{115.77} = 15.05\%$

    ID: cbm8h 5-73

    Diff: 2   Page Ref: pgs 182-185

41) Reduction needed = 4755.00 - 1900.00 = $2855.00

    Discount allowed: 3%

    Payment = (1 - .03)(2855.00) = $2769.35

    ID: cbm8h 5-75

    Diff: 2   Page Ref: pgs 193-194

42) Cost = (1 - .30)(1 - .10)4000.00 = 2520.00

    C + .25R + .20R = R

    2520.00 + .45R = R

    2520.00 = .55R

    4581.82 = R

    New regular selling price - discount = R

    N - .40N = R

       .60N = 4581.82

         N = 7636.36

    Sale price = (1-.25) × 7636.36 = $5757.27

    Total cost = 2520.00 +.25(4581.82) =2520.00 +1145.46 = $3665.46

    Operating profit = $5757.27 -3665.46 = $2091.81

    ID: cbm8h 5-84

    Diff: 3   Page Ref: pgs 211-215

1) $P = 7000; i = 0.055; t = \dfrac{5}{12}$

$I = (7000)(0.055)\left(\dfrac{5}{12}\right) = \$160.42$

ID: cbm8h 7-1
Diff: 1   Page Ref: pg 259

2) $P = 875.00; r = 0.115$

Time period May 29, 2001, to August 13, 2001 = 225 – 149 = 76 days

$I = (875.00)(.115)\left(\dfrac{76}{365}\right) = \$20.95$

ID: cbm8h 7-6
Diff: 1   Page Ref: pg 259

3) $I = 49.27; r = 0.11; t = \dfrac{325}{365}$

$P = \dfrac{I}{rt} = \dfrac{49.27}{.11 * \dfrac{325}{365}} = \$503.04$

ID: cbm8h 7-8
Diff: 1   Page Ref: pgs 261-262

4) $i = 0.045; n = \dfrac{3}{12}; I = 100$

$P = \left(\dfrac{100}{0.045\left(\dfrac{3}{12}\right)}\right) = \$8888.89$

ID: cbm8h 7-9
Diff: 1   Page Ref: pgs 261-262

5) $I = 49.27; r = 0.11; t = \dfrac{325}{365}$

$P = \dfrac{I}{rt} = \dfrac{49.27}{.11 * \dfrac{325}{365}} = \$503.04$

ID: cbm8h 7-10
Diff: 1   Page Ref: pgs 261-262

6) $I = 219.89; r = 0.1125$

Time period November 16, 2003, to February 7, 2004 = 15 + 31 + 31 + 7 = 84 days

$P = \dfrac{219.89}{(.1125)\left(\dfrac{84}{365}\right)} = \$8493.11$

ID: cbm8h 7-11
Diff: 1   Page Ref: pgs 262-263

7) $I = 42.95$; $P = 950$; $t = \dfrac{7}{12}$

$r = \dfrac{42.95}{950\left(\dfrac{7}{12}\right)} = 0.0775 = 7.75\%$

ID: cbm8h 7-12
Diff: 1   Page Ref: pgs 262-263

8) $P = 12000$; $I = 480$; $i = 0.06$

$t = \dfrac{480}{12000(0.06)} = 0.666666667(12) = 8 \text{ months}$

ID: cbm8h 7-15
Diff: 1   Page Ref: pgs 263-264

9) $P = 478.00$; $I = 17.09$; $r = 0.0775$

$T(\text{days}) = \dfrac{I}{Pr} * 365 = \dfrac{17.09}{478.00 * .0775} * 365$

$= .4613308 * 365$

$= 168.39 \text{ days}$

ID: cbm8h 7-17
Diff: 1   Page Ref: pgs 262-263

10) Number of days $= 31 + 30 + 31 + 31 + 28 + 3 = 154$

$I = 42.49$; $P = 940.48$; $t = \dfrac{154}{365}$

$r = \dfrac{42.49}{940.48 * \dfrac{154}{365}} = \dfrac{42.49}{396.8052603} = 10.71\%$

ID: cbm8h 7-18
Diff: 1   Page Ref: pgs 266-267

11) $P = 1750.00$; $r = 0.0725$; $t = \dfrac{14}{12}$

$S = P(1 + r) = 1750.00\left[1 + .0725 * \dfrac{14}{12}\right]$

$= 1750.00(1.0845833)$

$= 1898.02$

ID: cbm8h 7-20
Diff: 1   Page Ref: pgs 263-264

12) Interest: $I = 4845.94 - 3500.00 = 1345.94$; $P = 3500.00$; $r = 0.1025$

$t_{\text{months}} = \dfrac{1345.94}{3500(.1025)} * 12$

$= 3.75174913 * 12$

$= 45.02 \text{ months}$

ID: cbm8h 7-22
Diff: 1   Page Ref: pgs 269-270

13) $S = 100000.00; r = 0.05; t = \dfrac{18}{12}$

$$P = \dfrac{100000.00}{\left[1 + .05 * \dfrac{18}{12}\right]} = \dfrac{100000.00}{1.075} = 93023.26$$

ID: cbm8h 7–27
Diff: 1   Page Ref: pgs 269–270

14) Let the size of the single payment be $x.
The focal date is 90 days from now.
The equation of equivalence is

$$1700.00\left[1 + 0.14 * \dfrac{150}{365}\right] + 1200.00\left[1 + 0.14 * \dfrac{45}{365}\right] = x$$

$$1797.81 + 1220.71 = x$$

$$x = 3018.52$$

The single payment 90 days from now is $3018.52.
ID: cbm8h 7–30
Diff: 2   Page Ref: pgs 275–279

15) Use 8 months as the focal date and let $x represent the final payment.

$$1000\left(1 + 0.06\left(\dfrac{5}{12}\right)\right) + x = 800\left(1 + 0.06\left(\dfrac{8}{12}\right)\right) + 1400\left(1 + 0.06\left(\dfrac{3}{12}\right)\right)$$

$$1025.00 + x = 832.00 + 1421.00$$

$$x = 1228.00$$

The size of the payment is $1228.00.
ID: cbm8h 7–31
Diff: 2   Page Ref: pgs 275–279

16) Let the size of the single payment be $x.
At the agreed focal date (170 days now):

$$1610.00\left[1 + 0.095\left[\dfrac{170}{365}\right]\right] + 725.00\left[1 + 0.095\left[\dfrac{69}{365}\right]\right] + \dfrac{670.00}{1 + 0.095\left[\dfrac{126}{365}\right]} = x$$

$$1681.24 + 738.02 + 648.72 = x$$

$$x = 3067.98$$

The size of the single payment is $3067.98.
ID: cbm8h 7–32
Diff: 2   Page Ref: pgs 275–279

17) Use August 1 as the focal date.
   For the $500.00 debt:

   $$P = 500; r = 0.08; t = \frac{153}{365}.$$

   $$S = 500\left[1 + 0.08\left(\frac{153}{365}\right)\right] = 516.77$$

   For the $1000.00 debt:

   $$S = 1000; t = \frac{92}{365}$$

   $$S = 1000\left[1 + 0.08\left(\frac{92}{365}\right)\right] = 1020.16$$

   For the $1500.00 debt:

   $$P = 1500; t = \frac{122}{365}$$

   $$P = \frac{1500}{1 + 0.08\left(\frac{122}{365}\right)} = 1460.93$$

   The single equivalent payment on August 1 is
   516.77 + 1020.16 + 1440.93 = $2977.86
   ID: cbm8h 7-33
   Diff: 2   Page Ref: pgs 275-279

18) Let the size of the final payment be $x.
   At the agreed focal date (4 months from now):

   $$1170.00\left[1 + 0.084\left[\frac{6}{12}\right]\right] + 1243.00\left[1 + 0.084\left[\frac{4}{12}\right]\right] = 1505.00\left[1 + 0.084\left[\frac{3}{12}\right]\right] + x$$
   $$1219.14 + 1277.80 = 1536.60 + x$$
   $$960.34 = x$$

   The size of the final payment is $960.34.
   ID: cbm8h 7-34
   Diff: 2   Page Ref: pgs 279-283

19) Let the size of the equal payments be $x.
   The focal date is today.
   The equation of equivalence is:

   $$835.00\left[1 + 0.0875 * \frac{90}{365}\right] + 835.00\left[1 + 0.0875 * \frac{35}{365}\right] = x + \frac{x}{1 + 0.0875 * \frac{65}{365}}$$

   $$853.01 + 842.00 = x + .9846569x$$
   $$1695.01 = 1.9846569x$$
   $$x = 854.06$$

   The size of the payments is $854.06.
   ID: cbm8h 7-35
   Diff: 3   Page Ref: pgs 279-283

20) Let the size of the equal payments be $x.
   At the agreed focal date (now):

$$1480.00\left[1+0.12\left[\frac{4}{12}\right]\right]+\frac{1385.00}{1+0.12\left[\frac{1}{12}\right]}=x+\frac{x}{1+0.12\left[\frac{9}{12}\right]}$$

$$1539.20+1371.29=x+.9174312x$$
$$2910.49=1.9174312x$$
$$1517.91=x$$

The size of the equal payments is $1517.91.

ID: cbm8h 7–36
Diff: 3   Page Ref: pgs 283–284

21) Let the size of the equal payments be $x.
   At the agreed focal date (today):

$$3325.00=\frac{x}{1+0.1215\left[\frac{102}{365}\right]}+\frac{x}{1+0.1215\left[\frac{157}{365}\right]}+\frac{x}{1+0.1215\left[\frac{189}{365}\right]}$$

$$3325.00=\frac{x}{1.0339534}+\frac{x}{1.0522616}+\frac{x}{1.0629137}$$

$$=.9671616x+.950334x+.9408102x$$
$$=2.853058x$$
$$1163.28=x$$

The size of the equal payment is $1163.28.

ID: cbm8h 7–37
Diff: 3   Page Ref: pgs 283–284

22) Let the size of the equal payments be $x.
   Focal date is September 30.
   Equation of equivalence is:

$$1000.00\left[1+0.06*\frac{90}{365}\right]=x\left[1+0.06*\frac{59}{365}\right]+x\left[1+0.06*\frac{31}{365}\right]+x$$

$$1014.79=x(1.00969863)+x(1.00509589)+x$$
$$1014.79=3.01479452x$$
$$336.60=x$$

The size of the equal payments is $336.60.

ID: cbm8h 7–38
Diff: 3   Page Ref: pgs 283–284

23) Let the size of the equal payments be $x.
   Focal date is September 30.
   Equation of equivalence is:

$$1825.00\left[1+0.086*\frac{204}{365}\right]=x\left[1+0.086*\frac{153}{365}\right]+x\left[1+0.086*\frac{103}{365}\right]+x\left[1+0.086*\frac{58}{365}\right]+700.00$$

$$1212.72=x(1.0360493)+x(1.0242685)+x(1.0136658)$$
$$1212.72=3.0739836x$$
$$394.51=x$$

The size of the equal payments is $394.51.

ID: cbm8h 7–39
Diff: 3   Page Ref: pgs 279–283

9

24) Let the size of the equal payments be $x.
   The focal date is one year from now.
   The maturity value of $1175 due in 9 months with 6% interest

   $$= 1175.00\left[1 + 0.06 * \frac{9}{12}\right] = 1227.88$$

   The equation of evidence is:

   $$1430.00(1 + 0.075 * 2) + 1227.88\left[1 + 0.075 * \frac{3}{12}\right] = x(1+0.075 * 1) + x\left[1 + 0.075 * \frac{5}{12}\right] + x \ \ 1644.50 + 1250.90 = x(1.075) +$$

   $x(1.03125) + x$.
   $$2895.40 = 3.10625x$$
   $$932.12 = x$$

   The size of the equal payments is $932.12.
   ID: cbm8h 7–40
   Diff: 3   Page Ref: pg 259

25) Legal due date is November 1, 2001.
   Interest period January 29, 2001 to November 1, 2001 is 276 days.

   $$\text{Interest} = 1195.00\left[.1125\left(\frac{276}{365}\right)\right] = 101.66$$

   ID: cbm8h 8–1
   Diff: 2   Page Ref: pgs 294–296

26) Use P = 5700.00; i = .112/12%; n = 84
   $S = 5700(1 + .112/12)^{84} = 5700(2.182263) = \$12438.92$
   ID: cbm8h 9–1
   Diff: 1   Page Ref: pgs 337–340

27) P = 4100.00; i = 4%; n = 14
   $S = 4100(1 + .04)^{14} = 4100(1.7316764) = \$7099.87$
   ID: cbm8h 9–2
   Diff: 1   Page Ref: pgs 337–340

28) PV = 3000; $i = \frac{8\%}{4} = 2\% = 0.02$; n = 15(4) = 60; I/Y = 8; P/Y = C/Y = 4

   $FV = 3000(1 + 0.02)^{60} = 9843.09$

   Programmed solution:

   (Set P/Y = 4) [2nd](CLRTVM) 3000[+/−] [PV]   8 [I/Y] 60 [N]

   [CPT]   [FV]   [9843.09]

   Interest = 9843.09 − 3000.00 = $6843.09
   ID: cbm8h 9–3
   Diff: 1   Page Ref: pgs 337–340

29) P = 13500.00; i = 8.44%/4 = 2.11%; n = 11*4 = 44
   $S = 13500(1 + .0211)^{44} = 13500(2.5061332) = 33832.80$
   I = 33832.80 − 13500.00 = 20332.80
   ID: cbm8h 9–4
   Diff: 1   Page Ref: pgs 337–340

30) $P = 10000.00$; $i = 6.0\%/4 = 1.5\%$; $n = 15*4 = 60$

$S = 10000(1 + .015)^{60} = 10000(2.4432198) = 24432.20$

$I = 24432.20 - 10000.00 = 14432.20$

ID: cbm8h 9-5
Diff: 1   Page Ref: pgs 337–340

31) $P = 3500.00$; $i = \dfrac{13.48\%}{4} = .0337$

October 31, 2002 – July 31, 2016 contains 13 years, 9 months.

$n = 13 * 4 + 9/12 * 4 = 52 + 3 = 55$

$S = 3500.00(1 + .0337)^{55} = 3500.00(6.1901104) = 21665.39$

ID: cbm8h 9-6
Diff: 1   Page Ref: pgs 337–340

32) $P = 2700000$; $m = 1$; $i = 16\%$; $n = 4$

$S = 2700000(1 + .16)^4 = 2700000(1.81063936) = 4888726.27$

Forecasted assets will amount to \$4888726.27.

ID: cbm8h 9-9
Diff: 1   Page Ref: pgs 337–340

33) $P = 50\ 000\ 000$; $m = 1$; $i = 10\%$; $n = 10$

$S = 50000000(1 + .10)^{10} = 50000000(2.59374246) = 129\ 687\ 123$

Forecasted assets will amount to \$129 687 123.

ID: cbm8h 9-10
Diff: 1   Page Ref: pgs 337–340

34) $P = 3875.00$; $i = 9.75\%$; $n = \dfrac{61}{12} = 5.0833333$

$S = 3875.00(1.0975)^{5.0833333} = 3875.00(1.6046846) = \$6218.15$

ID: cbm8h 9-11
Diff: 1   Page Ref: pgs 341–342

35) $P = 4320.00$; $i = 8.25\% = .0825$; $n = \dfrac{8}{12} = 5.6666667$

$S = 4320.00(1.0825)^{5.6666667} = 4320.00(1.5670811) = \$6769.79$

ID: cbm8h 9-12
Diff: 1   Page Ref: pgs 341–342

36) Interest period 2001-03-31 to 2006-08-31 contains 5 years 5 months.

$P = 1400.00$; $i = .0191$; $n = 5 * 4 + \dfrac{5}{12}$ ~~24~~

Maturity value = ~~1400.00(1.0191)~~ ~~5.6666667~~ ~~1400.00(1.6251617) = \$2275.23~~ $= 1400(1 + 0.0191)^{21.6}$

$= 2109.40$

ID: cbm8h 9-13
Diff: 1   Page Ref: pgs 337–340

37) $N = (6 + \dfrac{7}{12})4 = 26.3333333$

$P = 11415.00(1.019)^{-26.3333333} = 11415.00(.6091812) = \$6953.80$

ID: cbm8h 9-17
Diff: 1   Page Ref: pgs 354–355