

# assignment #3

§5.1

c)2

$$\begin{aligned} N &= (1-d)L \\ &= (1 - 16\frac{2}{3}\%) 49.98 \\ &= \$41.65 \end{aligned}$$

#4

$$\begin{aligned} d &= \frac{L-N}{L} \\ &= \frac{1136 - 760}{1136} \\ &= 33\% \end{aligned}$$

#14

a)

$$\begin{aligned} N &= (1-d_1)(1-d_2)(1-d_3)L \\ &= (1 - 16\frac{2}{3}\%)(1 - 10\%)(1 - 8\%)174 \\ &= \$120.06 \end{aligned}$$

b)

$$\begin{aligned} \text{Total amount} &= 174 - 120.06 \\ &= \$53.94 \end{aligned}$$

$$\begin{aligned} c) \text{ spF} &= 1 - [(1-d_1)(1-d_2)(1-d_3)] \\ &= 31\% \end{aligned}$$

$$\#18 \quad N = (1-d_1)(1-d_2)(1-d)L$$

$$274.89 = (1 - 25\%)(1 - 15\%)(1-d)440$$

$$0.98 = (1-d)$$

$$d = 2\%$$

$$\#22 \quad N = (1-d_1)(1-d_2)(1-d_3)L$$

$$564.48 = (1 - 33\frac{1}{3}\%)(1 - 10\%)(1 - 2\%)L$$

$$L = \$960$$

# 26

$$87.40 = (1-d_1)(1-d_2)125$$

$$87.40 = (1-24\%)(1-d_2)125$$

$$0.92 = (1-d_2)$$

$$8\% = d_2$$

§ 5.2

# 2

a) July 1<sup>st</sup>

$$b) N = (1-2\%)6200$$

$$= 0.98(6200)$$

$$= \$6076$$

$$\# 8 \quad N = (1-5\%)740$$

$$= (0.95)740$$

$$= \$703$$

# 16

$$a) d = \frac{L-N}{L}$$

$$= \frac{26465 - 24877.10}{26465}$$

$$= 6\%$$

§ 5.3

$$\# 2 \quad S = C + E + P$$

$$50 = 25 + 0.30(50) + P$$

$$P = \$10$$

# 14

$$a) (1-5\%)(\text{credit paid}) = (\text{amount paid})$$

$$0.95(\text{credit paid}) = 5966$$

$$\text{credit paid} = 6280$$

$$b) \text{Balance} = 13780 - \text{credit paid}$$

$$= 13780 - 6280$$

$$= \$7500$$

$$a) \text{discount} = 26465 - 24877.10$$
$$= \$1587.90$$

#4

$$\begin{aligned}
 N &= (1-d_1)(1-d_2)L \\
 &= (1-20\%)(1-20\%)5 \\
 &= \$3.20
 \end{aligned}$$

$$\begin{aligned}
 S &= C + E + P \\
 &= 3.20 + 0.45(3.20) + 0.15(3.20) \\
 &= \$5.12
 \end{aligned}$$

#6

$$\begin{aligned}
 a) \quad N &= (1-d_1)(1-d_2)L \\
 &= (1-40\%)(1-25\%)55 \\
 &= \$24.75
 \end{aligned}$$

$$\begin{aligned}
 b) \quad \text{rate of} &= \frac{54.45 - 24.75}{54.45} \\
 \text{markup} &= 54.55\%
 \end{aligned}$$

$$\begin{aligned}
 \text{rate of} &= \frac{54.45 - 24.75}{24.75} \\
 \text{markup} &= 120\%
 \end{aligned}$$

#10

$$\begin{aligned}
 a) \quad S &= C + M \\
 74.55 &= C + 0.4C \\
 74.55 &= 1.4C \\
 \$53.25 &= C
 \end{aligned}$$

$$\begin{aligned}
 b) \quad \text{rate of} &= \frac{74.55 - 53.25}{74.55} \\
 \text{markup} &= 29\%
 \end{aligned}$$

#12 a)

$$\begin{aligned}
 S &= C + M \\
 S &= 12.80 + 0.6S \\
 0.4S &= 12.80 \\
 S &= \$32.00
 \end{aligned}$$

$$\begin{aligned}
 b) \quad \text{rate of} &= \frac{32.00 - 12.80}{12.80} \\
 \text{markup} &= 150\%
 \end{aligned}$$

§5.4

#2a)

$$S = C + E + P$$

$$S = 44 + 0.27S + 0.18S$$

$$S = \$80$$

$$\begin{aligned} \text{b) Sale price} &= (1 - 40\%) 80 \\ &= \$48 \end{aligned}$$

$$\begin{aligned} \text{c) Total cost} &= 44 + 0.27S \\ &= 44 + 0.27(80) \\ &= \$65.6 \end{aligned}$$

$$\begin{aligned} \text{Profit} &= \text{Sale price} - \text{Total cost} \\ &= 48 - 65.6 \\ &= \$-17.6 \end{aligned}$$

Operational loss

$$\text{\#6 rate of markdown} = \frac{1299 - 935}{1299} = 28\%$$

#10a)

$$S = C + E + P$$

$$3849 = C + 0.31C + 0.17C$$

$$C = \$2600.68$$

$$\text{b) Total cost} = C + E$$

$$\begin{aligned} &= 2600.68 + 0.31(2600.68) \\ &= \$3406.89 \end{aligned}$$

$$\begin{aligned} \text{c) rate of markdown} &= \frac{3406.89 - 2600.68}{3406.89} \\ &= 24\% \end{aligned}$$

§5.5

$$\begin{aligned} \text{2a) } N &= (1 - d_1)(1 - d_2)(1 - d_3)L \\ &= (1 - 33\frac{1}{3}\%)(1 - 20\%)(1 - 5\%) 420 \\ &= \$212.80 \end{aligned}$$

$$\begin{aligned} S &= C + M \\ S &= C + 0.6S \\ S &= 212.80 + 0.6S \\ 0.4S &= 212.80 \\ S &= \$532.00 \end{aligned}$$

$$\text{Sale price} = (1 - 0.45) 532 = \$292.60$$

$$b) \text{ markup} = \frac{292.60 - 212.80}{212.80} = 37.50\%$$

$$\begin{aligned} \#4a) \quad N &= (1-d_1)(1-d_2)L \\ &= (1-37\frac{1}{2}\%)(1-4\%)620 \\ &= \$372.00 \end{aligned}$$

$$\text{markdown} = \frac{558 - 432.45}{558} = 22.5\%$$

$$b) \text{ Markup} = \frac{558 - 372.00}{558} = 33\frac{1}{3}\%$$

$$\begin{aligned} c) \text{ Profit} &= \text{sale price} - \text{Total cost} \\ &= 432.45 - (372.00 + 0.15(558)) \\ &= \$-23.25 \end{aligned}$$

$$d) \text{ Markup} = \frac{558 - 372}{372} = 50\%$$

$$\begin{aligned} \#8a) \quad N &= (1-d_1)(1-d_2)L \\ &= (1-40\%)(1-16\frac{2}{3}\%)24 \\ &= \$12.00 \end{aligned}$$

$$S = C + F + P$$

$$S = 12 + 0.25(12) + 0.3(12)$$

$$S = \$19$$

$$\begin{aligned} b) \text{ Total cost} &= 12 + 0.25(12) \\ &= \$15 \end{aligned}$$

$$\text{markdown} = 19 - 15 = 4$$

$$c) \text{ rate of markdown} = \frac{4}{19} = 21\%$$

#12

$$\begin{aligned}N &= (1-d_1)L \\ &= (1-25\%)264 \\ &= 0.75(264) \\ &= \$198\end{aligned}$$

$$\begin{aligned}S &= C + E + P \\ S &= 198 + M \\ S &= 198 + 0.3S \\ 0.6S &= 198 \\ S &= \$297.00\end{aligned}$$

§7.1

B) #2  $I = Prt$   
 $= 645(0.0625)(1.75) = \$70.55$

#4  $I = Prt$   
 $= 1651.43(0.049)\left(\frac{9}{12}\right) = \$60.69$

#6  $I = Prt$   
 $= 1697.23(0.034)\left(\frac{163}{365}\right) = \$25.77$

C) #2  $I = Prt$   
 $= 1500(0.0225)\left(\frac{137}{365}\right) = \$12.67$

#4  $I = Prt$   
 $= 1800(0.072)\left(\frac{100}{365}\right) = \$35.51$

§7.2

B) #2  $P = \frac{I}{rt} = \frac{39.27}{(0.0275)\left(\frac{225}{365}\right)} = \$2316.53$

$$\#6 \quad r = \frac{I}{Pt} = \frac{22.74}{2400 \left( \frac{91}{365} \right)} = 3.8\%$$

$$\#10 \quad t = \frac{I}{Pr} = \frac{12.22}{1200 (0.16\%)} = 22 \text{ days}$$

$$\#14 \quad r = \frac{88.47}{7800 \left( \frac{120}{365} \right)} = 3.4\%$$

§7.3

$$B)\#2 \quad S = P(1+rt) = 800 \left( 1 + 0.0275 \left( \frac{210}{365} \right) \right) \\ = \$812.66$$

$$\#4 \quad S = P(1+rt) = 8000 \left( 1 + 0.0855 \left( \frac{15}{12} \right) \right) \\ = \$8855.00$$

$$\#6 \quad S = P(1+rt) = 17200 \left( 1 + 0.0185 \left( \frac{150}{365} \right) \right) \\ = \$17330.77$$

$$\#8 \quad S = P(1+rt) = 40000 \left( 1 + 0.0243 \left( \frac{240}{365} \right) \right) \\ = \$40639.12$$

§7.4 B)

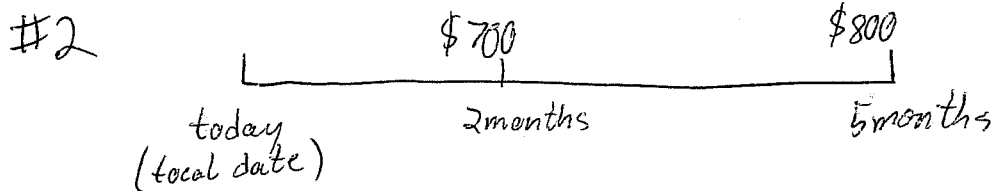
$$\#2 \quad P = \frac{S}{1+rt} = \frac{480.57}{1+0.046\left(\frac{93}{365}\right)} = \$475.00$$

$$\#4 \quad P = \frac{S}{1+rt} = \frac{708.13}{1+0.053\left(\frac{80}{365}\right)} = \$700.00$$

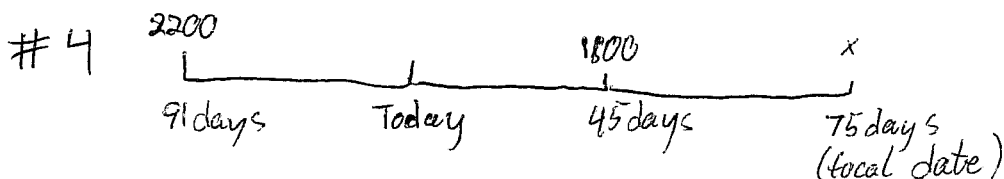
$$\#6 \quad P = \frac{S}{1+rt} = \frac{1750}{1+0.185\left(\frac{6}{12}\right)} = \$1601.83$$

$$\#8 \quad P = \frac{S}{1+rt} = \frac{10000}{1+0.0506\left(\frac{191}{365}\right)} = \$9755.22$$

§7.5 B

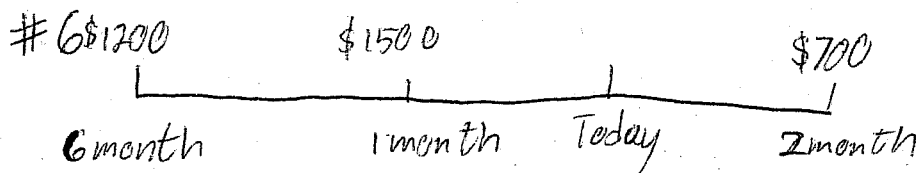


$$\begin{aligned} \text{Payment Today} &= \frac{700}{1+0.083\left(\frac{2}{12}\right)} + \frac{800}{1+0.083\left(\frac{5}{12}\right)} \\ &= \$1463.71 \end{aligned}$$

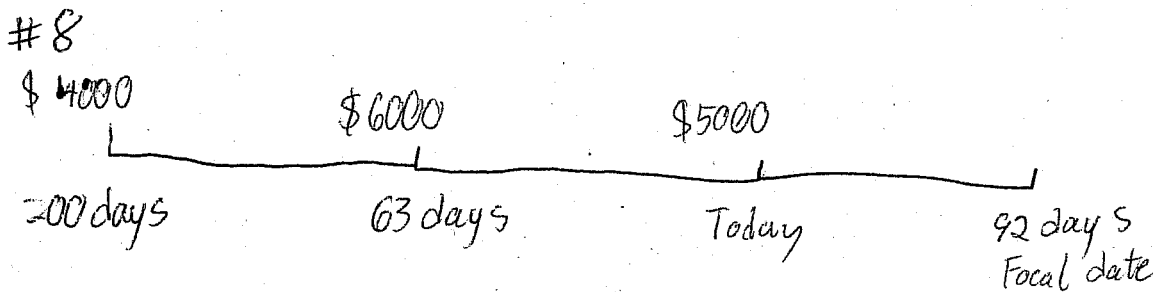


$$\begin{aligned} \text{Payment in 75 days} &= 2200 \left(1+0.09\left(\frac{166}{365}\right)\right) + 1800 \left(1+0.09\left(\frac{30}{365}\right)\right) \\ &= 4103.36 \end{aligned}$$





$$\begin{aligned} \text{payment}_{\text{Today}} &= 1200 \left(1 + 0.098 \left(\frac{6}{12}\right)\right) + 1500 \left(1 + 0.098 \left(\frac{1}{12}\right)\right) \\ &\quad + \frac{700}{1 + 0.098 \left(\frac{2}{12}\right)} \\ &= 3459.80 \end{aligned}$$

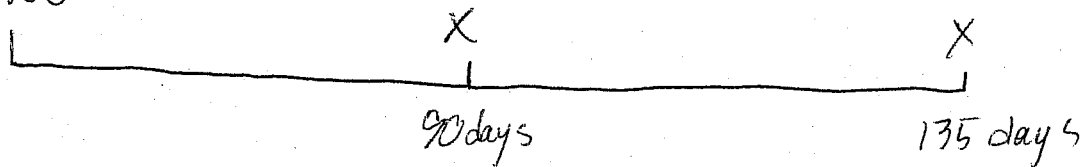


$$\begin{aligned} &4000 \left(1 + 0.083 \left(\frac{292}{365}\right)\right) + 6000 \left(1 + 0.083 \left(\frac{155}{365}\right)\right) \\ &= 5000 \left(1 + 0.083 \left(\frac{92}{365}\right)\right) + \text{payment} \end{aligned}$$

$$\text{payment} = \$5372.48$$

#10

2300



$$2300 = \frac{X}{1 + 0.0925 \left( \frac{90}{365} \right)} + \frac{X}{1 + 0.0925 \left( \frac{135}{365} \right)}$$

$$2300 = 0.977700345 X + 0.966919434 X$$

$$2300 = 1.944619829 X$$

$$\$1182.75 = X$$

§9.1

$$A) \#2 \quad m = 2$$

$$i = \frac{7.4\%}{2} = 3.7\%$$

$$n = 2 \cdot 8 = 16$$

$$\#6 \quad m = 4$$

$$i = \frac{4.8\%}{4} = 1.2\%$$

$$n = 4 \cdot \left( 5 \frac{3}{4} \right) = 23$$

$$\#10 \quad m = 12$$

$$i = \frac{8.1\%}{12} = 0.675\%$$

$$n = 12 (16.5) = 31$$

69.2

B) #2

$$S = P(1+i)^n = 1500(1 + \frac{8\%}{4})^{4 \cdot 15} = 1500(1 + 0.02)^{60} = \$4921.55$$

$$I = S - P = 4921.55 - 1500 = \$3421.55$$

#6a)  $S = P(1+i)^n = 500(1 + 0.075)^5 = \$717.81$

b)  $S = 500(1 + \frac{0.075}{2})^{2 \cdot 5} = \$722.52$

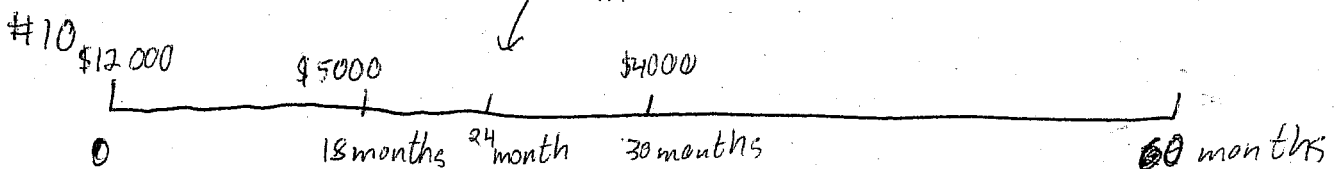
c)  $S = 500(1 + \frac{0.075}{4})^{4 \cdot 5} = \$724.97$

d)  $S = 500(1 + \frac{0.075}{12})^{12 \cdot 5} = \$726.65$

#10  $S = P(1+i)^n = 4000(1 + 0.085)^{4 \cdot \frac{18}{12}} = \$5853.27$

c) #2  $S = 2500(1 + \frac{0.045}{12})^{3 \cdot 12} = \$2860.62$

$S = 2860.62(1 + \frac{0.045}{4})^{4 \cdot (1\frac{1}{2})} = \$3059.22$



Balance at 18 months:

$$\begin{aligned} \text{Balance} &= 12000 \left(1 + \frac{0.11}{2}\right)^{2 \cdot \left(\frac{18}{12}\right)} - 5000 \\ &= \$9090.90 \end{aligned}$$

Balance at 24 months: (change of interest rate)

$$\begin{aligned} \text{Balance} &= 9090.90 \left(1 + \frac{0.11}{2}\right)^{2 \cdot \left(\frac{6}{12}\right)} \\ &= \$9590.90 \end{aligned}$$

Balance at 30 months

$$\begin{aligned} \text{Balance} &= 9590.90 \left(1 + \frac{0.12}{12}\right)^{12 \cdot \left(\frac{6}{12}\right)} - 4000 \\ &= \$6180.93 \end{aligned}$$

Balance at 60 months:

$$\begin{aligned} \text{Balance} &= 6180.93 \left(1 + \frac{0.12}{12}\right)^{\frac{30 \cdot 12}{12}} \\ &= \$8330.96 \end{aligned}$$

↑ final payment.

99.3 B)

$$\#2 \quad P = \frac{S}{(1+i)^n} = \frac{2500}{(1 + \frac{0.06}{4})^{4 \cdot \left(\frac{63}{12}\right)}}$$

$$= \$1723.01$$

$$\#6 \quad P = \frac{S}{(1+i)^n} = \frac{3000}{(1+0.0775)^5} = \$2065.55$$

#10 Option A: \$50 000

$$\text{Option B: } 20000 + \frac{35000}{(1+4.25\%)^2}$$

$$= 20000 + 32204.45 = \$52204.45$$