

ASSIGNMENT #3

#4

5.3

$$\begin{aligned}
 N &= (1-d_1)(1-d_2)L \\
 &= (1-20\%)(1-20\%)75 \\
 &= \$3.20
 \end{aligned}$$

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

#2

$$\begin{aligned}
 S &= C + E + P \\
 50 &= 25 + 0.30(50) + P \\
 P &= \$10
 \end{aligned}$$

#6

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

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

$$\text{rate of markup} = \frac{54.45 - 24.75}{24.75}$$

$$= 120\%$$

#10

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

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

#12a)

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

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

§5.4

#2a)

$$S = C + E + P$$

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

$$S = \$80$$

$$b) \text{ Sale price} = (1 - 40\%) 80$$

$$= \$48$$

$$c) \text{ Total cost} = 44 + 0.27S$$

$$= 44 + 0.27(80)$$

$$= \$65.6$$

$$\text{Profit} = \text{Sale price} - \text{Total cost}$$

$$= 48 - 65.6$$

$$= \$-17.6$$

operational loss

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

#10a)

$$S = C + E + P$$

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

$$C = \$2600.68$$

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

$$= 2600.68 + 0.31(2600.68)$$

$$= \$3406.89$$

$$c) \text{ rate of markdown} = \frac{3849 - 3406.89}{3849} = 11.5\%$$

§5.5

$$2a) N = (1 - d_1)(1 - d_2)(1 - d_3)L$$

$$= (1 - 33\frac{1}{3}\%)(1 - 20\%)(1 - 5\%) 420$$

$$= \$212.80$$

$$S = C + M$$

$$S = C + 0.6S$$

$$S = 212.80 + 0.6S$$

$$0.4S = 212.80$$

$$S = \$532.00$$

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

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

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

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

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

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

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

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

$$S = C + E + P$$

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

$$S = \$19$$

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

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

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

#12

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

S = sale price

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

R = regular selling price

$$297.00 = (1-0.2)R$$

$$R = \frac{297.00}{0.8} = \$371.25$$

§7.1

$$\begin{aligned}
 \text{B) \#2} \quad I &= Prt \\
 &= 695(0.0625)(1.75) = \$70.55
 \end{aligned}$$

$$\begin{aligned}
 \text{\#4} \quad I &= Prt \\
 &= 1651.43(0.049)\left(\frac{9}{12}\right) = \$60.69
 \end{aligned}$$

$$\begin{aligned}
 \text{\#6} \quad I &= Prt \\
 &= 1697.23(0.034)\left(\frac{163}{365}\right) = \$25.77
 \end{aligned}$$

$$\begin{aligned}
 \text{C) \#2} \quad I &= Prt \\
 &= 1500(0.0275)\left(\frac{137}{365}\right) = \$12.67
 \end{aligned}$$

$$\begin{aligned}
 \text{\#4} \quad I &= Prt \\
 &= 1800(0.072)\left(\frac{100}{365}\right) = \$35.51
 \end{aligned}$$

§7.2

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

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

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

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

§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)

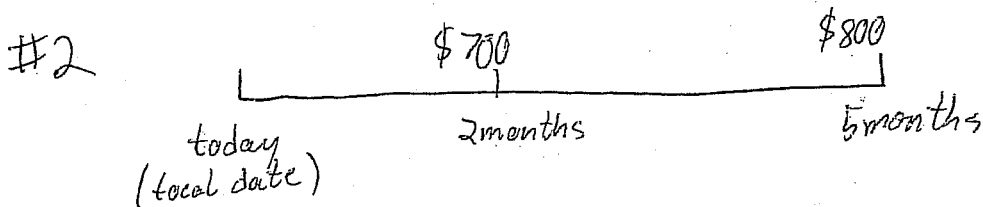
$$\#2 \quad P = \frac{S}{1+rt} = \frac{480.57}{1+0.046\left(\frac{93}{365}\right)} = \$425.00$$

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

$$\#6 \quad P = \frac{S}{1+rt} = \frac{1750}{1+0.189\left(\frac{6}{12}\right)} = \$1548.90$$

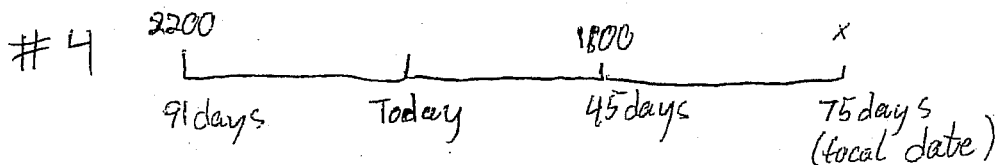
$$\#8 \quad P = \frac{S}{1+rt} = \frac{10000}{1+0.0506\left(\frac{191}{365}\right)} = \$9755.22$$

§7.5 B



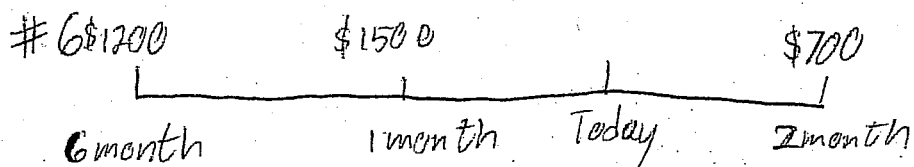
$$\text{Payment Today} = \frac{700}{1+0.083\left(\frac{2}{12}\right)} + \frac{800}{1+0.083\left(\frac{5}{12}\right)}$$

$$= \$1463.71$$

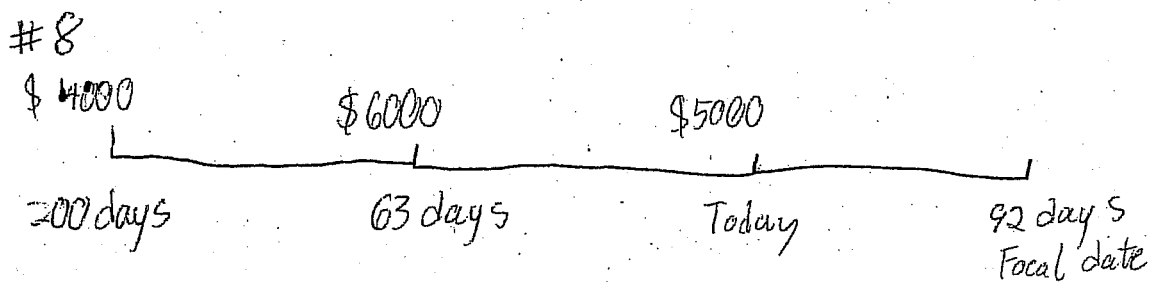


$$\text{Payment in 75 days} = 2200 \left(1+0.09\left(\frac{166}{365}\right)\right) + 1800 \left(1+0.09\left(\frac{30}{365}\right)\right)$$

$$= 4103.36$$

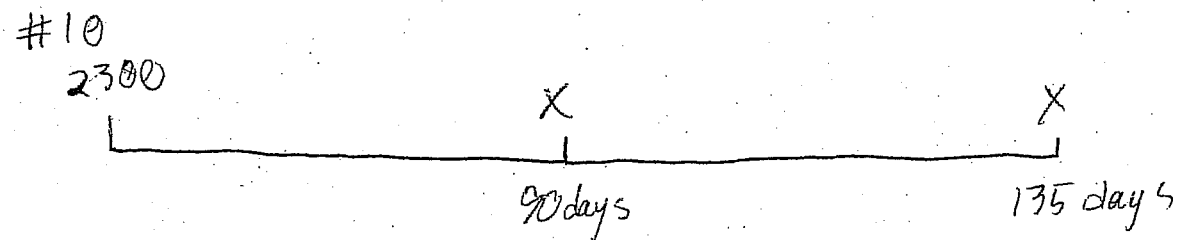


$$\begin{aligned} \text{payment}_{\text{Today}} &= 1200 \left(1 + 0.098 \left(\frac{6}{12}\right)\right) + 1500 \left(1 + 0.098 \left(\frac{1}{12}\right)\right) \\ &\quad + \frac{700}{1 + 0.098 \left(\frac{2}{12}\right)} \\ &= 3459.80 \end{aligned}$$



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

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



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

$$2300 = 0.977700345 X + 0.966919434 X$$

$$2300 = 1.944619829 X$$

$$\$1182.75 = X$$

§9.1

A) #2 $m = 2$

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

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

#6 $m = 4$

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

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

#10 $m = 12$

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

$$n = 12(15.5) = 186$$

69.2

B) #2

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

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

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

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

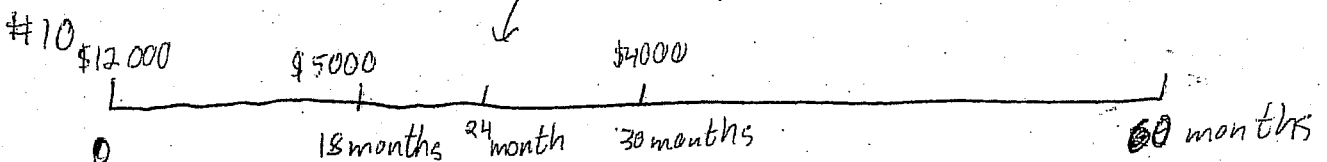
c) $S = 500\left(1 + \frac{0.075}{4}\right)^{4 \cdot 5} = \724.97

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

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

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

$$S = 2860.62\left(1 + \frac{0.05}{4}\right)^{4 \cdot (1\frac{1}{2})} = \$3081.98$$



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)

$$\begin{aligned} \#2 \quad P &= \frac{S}{(1+i)^n} = \frac{2500}{\left(1 + \frac{0.06}{4}\right)^{4 \cdot \left(\frac{63}{12}\right)}} \\ &= \$1723.01 \end{aligned}$$

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

#10 Option A: \$50,000

$$\text{Option B: } 20000 + \frac{35000}{(1+4.25\%)^3}$$

$$= 20000 + 30891.56 = \$50891.56$$

OPTION B IS BETTER