Extra Finance Review

1. a) $I = Prt$
$= 350(0.025)(9)$
$= 78.75$

b) $A = P + I$
$= 350 + 78.75$
$= 428.75$

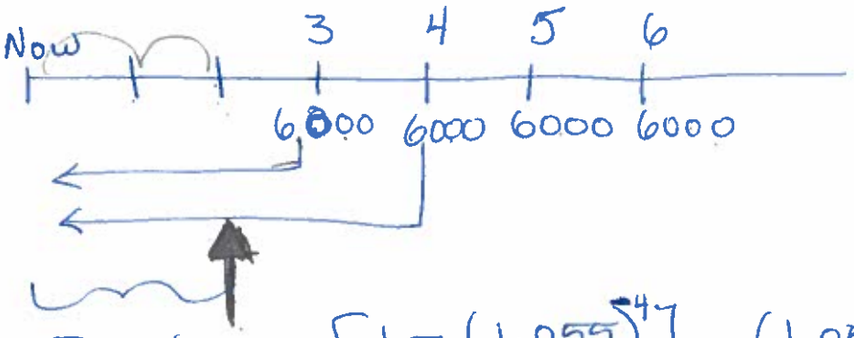
2. $A = [[3500(1+0.0405/12)^{12} - 400](1+0.0405/12)^{24} + 1200](1+0.0405/12)^{24}$

one step.

multiple steps

$= 5115.00$

3.



24000

$$P = \frac{6000[1-(1.055)^{-4}]}{0.055} \times (1.055)^{-2}$$

$= 18895.26$

4. $I = 760 \times 0.22 \times \frac{75}{365}$

$= 34.36$

$A = P + I$
$= 760 + 34.36$
$= 794.36$

Oops! You do need to do this for the answer.

#2 $A_1 = 3500(1.003375)^{12}$
$= 3644.41$
$- 400$ payment
New $P_2 = 3244.41$

$i = 0.0405/12$
$= 0.003375$

$A_2 = 3244.41(1.003375)^{24}$
$= 3517.66$
$+ 1200$
new $P_3 \rightarrow \$4717.66$

$A_3 = 4717.66(1.003375)^{24}$
$= 5115.00$

→ see final sheet for alternate question 5

5. $P = 4000$ $A = 5249$ $i = \frac{0.0625}{2}$

$= 0.03125$

6.25% compounded semi-annually.

$n = ?$ years $= \frac{n}{2}$

$5249 = 4000(1.03125)^n$

$\frac{5249}{4000} = 1.03125^n$

$1.03125^n = 1.31225$ (24 years)

$1.03125^4 = 1.13098$

$1.03125^8 = 1.2791$

$1.03125^9 = 1.319$ ✓

$n = 9$

years $= \frac{9}{2} = 4.5$

* n needs to be a whole number.

trial + error.

∴ it will be worth 5249 after $4\frac{1}{2}$ years

6. $P = A(1+i)^{-n}$

$P = 6000\left(1 + \frac{0.0475}{2}\right)^{-20}$

$= 3752.09$

7.

$A = 20000$ $i = 0.0465/4$ $n = 24$

$R = \frac{20000(0.0465/4)}{[(1+0.0465/4)^{24} - 1]}$

$R \doteq 727.29$

Worksheet # 7 - question should be changed to quarterly payments in order to match answer (right now compounding and payments do not coincide)

Rate $= 400i\,\%$

8. $i = ?$

$P = 300 \quad A = 450 \quad n = 5 \times 4 = 20.$

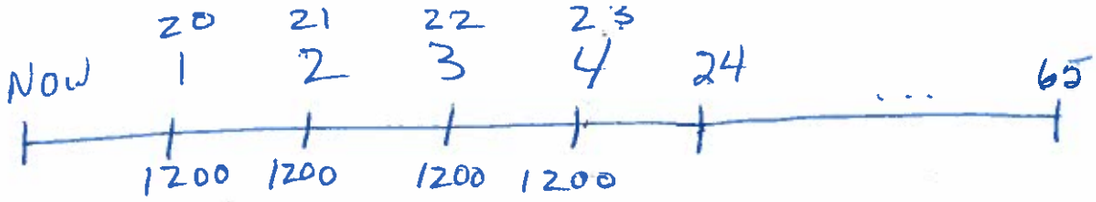
$$300(1+i)^{20} = 450$$
$$(1+i)^{20} = \frac{450}{300}$$
$$1+i = \sqrt[20]{1.5}$$
$$i = \sqrt[20]{1.5}^{1} - 1$$
$$i = 0,020480153$$
$$400i = 8.19\ \%.$$

9. $P = 125000 \quad n = 12 \times 12 = 144 \quad i = \frac{0,0675}{12}$

a) $$R = \frac{125000(0.0675/12)}{[1-(1+0.0675/12)^{-144}]}$$
$$= 1268.88$$

b) $I = 144 \times R - P$
$$= 144 \times 1268.88 - 125000$$
$$= 57718.72$$

10.



$i = 0.0715 \quad n = 4$

$$A = \frac{1200\left[(1.0715)^4 - 1\right]}{0.0715} \times (1.0715)^{42}$$

$$= 97094.48$$

Alternate number 5. using $3\frac{1}{8}\%$ compounded annually

$i = 3\frac{1}{8}\%$ /yr compounded annually

$i = 0.03125$

$n = ?$ note: number of years $= n$

$P = 4000$

$A = 5249$

$A = P(1+i)^n$

$4000(1+0.03125)^n = 5249$

$1.03125^n = \frac{5249}{4000}$

$1.03125^n = 1.31225$

trial and error

$1.03125^4 = 1.13098$

$1.03125^8 = 1.279121$

$1.03125^9 = 1.31909$

$\therefore n = 9$

It will take 9 years.