Name:
Stu#: SOLUTIONS

Some useful formulas:

$$A = P\left(1+\frac{r}{n}\right)^{nt} \qquad A = P(1+rt)$$

$$A = P\left[\frac{(1+i)^m - 1}{i}\right] \qquad V = P\left[\frac{1-(1+i)^{-m}-1}{i}\right]$$

(1) [5] What rate of interest compounded quarterly will yield an effective interest rate of 7%?

We require.

$$P\left(1+\frac{r}{4}\right)^4 = P(1+0.07)$$

$$\therefore \quad 1+\frac{r}{4} = (1.07)^{\frac{1}{4}}$$

$$\frac{r}{4} = (1.07)^{\frac{1}{4}} - 1$$

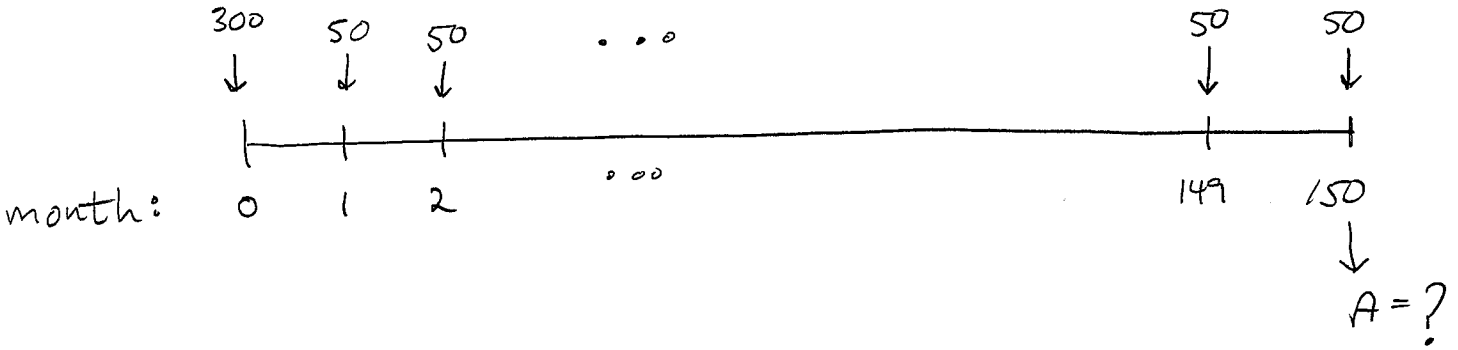
$$r = 4\left[(1.07)^{\frac{1}{4}} - 1\right]$$

$$\approx 0.0682$$

$$= 6.82\%$$

Name: SOLUTIONS.
Stu#:

(2) [10] Pam and Tim decide to start saving money for their daughter's college education. They open a college savings plan with a \$300 initial investment and next month start to make monthly deposits of \$50. If the account pays 6.00% compounded monthly, how much will the account be worth after 150 deposits? Be sure to include the initial investment in the computation.



$$\therefore A = 300\left(1+\frac{0.06}{12}\right)^{150} + 50\left[\frac{\left(1+\frac{0.06}{12}\right)^{150}-1}{\left(\frac{0.06}{12}\right)}\right]$$

using $i = \frac{0.06}{12}$, $n = 150$

$\therefore A \approx \$11764.39$

$\therefore$ After 150 deposits of \$50 the account will be worth \$11,764.39.