Some useful formulas:

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

$$1 + x + x^2 + x^3 + \cdots + x^{k-1} = \frac{1 - x^k}{1 - x}$$

(1) [**5 points**] Determine the effective rate of interest for 5% compounded quarterly.

(2) [**5 points**] What rate of interest compounded annually is required to triple an investment in 5 years?

(3) [**5 points**] A person wishes to have \$350,000 saved in a pension fund 20 years from now. How much should be deposited at the end of each month into an account paying 9% compounded monthly to accumulate the \$350,000 over the 20 years (that is, over the 240 monthly payments)?