

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

$$P = \$2500, r = 3\% \quad n = 1 \quad t = 20$$

$$A = 2500 \left(1 + \frac{3}{100} \right)^{20}$$

$$A = \$4515.28$$

$$b) A = P \left(1 + \frac{r}{n} \right)^{nt} \quad n = 12$$

$$A = P \left(1 + \frac{3}{1200} \right)^{12 \times 20}$$

$$A = 2500 \left(1 + \frac{3}{1200} \right)^{240}$$

$$A = \$4551.89$$

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

$$P(t) = P_0 e^{rt}$$

$$P(t) = 2500 e^{0.03 \times 20}$$

$$P(t) = 2500 e^{0.6}$$

$$P(t) = \$4555.30$$

$$P(t) = P_0 e^{rt}$$

$$2. A = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$P = 5000, r = 5\% \quad n = 12 \quad t = 50$$

$$A = 5000 \left(1 + \frac{5}{1200} \right)^{12 \times 50}$$

$$A = \$60,596.92.$$

Interest after 50 years =

$$60,596.92 - 5000 = \$55,596.92$$

When the money is invested, it earns \$55,596.92 as interest.

$$3) \quad A = P \left(1 + \frac{r}{n} \right)^{nt}$$

$$P = ?$$

$$r = 4$$

$$n = 4$$

$$t = 8$$

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

$$1000 = P \left(1 + \frac{4}{400} \right)^{4 \times 8}$$

$$1000 = P \left(1 + \frac{1}{100} \right)^{32}$$

$$1000 = P (1.01)^{32}$$

$$1.375 P = 1000$$

$$P = \frac{1000}{1.375}$$

$$P = \$ 727.27.$$