Name:_____

1. We make monthly deposits of $500 for 25 years into an account paying 3% interest, compounded monthly.

a) How much do we have in the account after 25 years?

$m = 12 \quad PMT = 500 \quad t = 25 \quad r = 0.03 \quad FV = ?$

$i = \frac{r}{m} = 0.0025 \quad n = mt = 300$

$$FV = PMT \frac{((1+i)^n - 1)}{i}$$

$$= 500 \frac{(1.0025^{300} - 1)}{0.0025}$$

$$\approx \$223,003.91$$

b) How much interest did we earn over the 25 years?

$$FV - n(PMT)$$

$$\approx 223,003.91 - 300(500)$$

$$\approx 73,003.91$$

2. Let p: Penguins can fly.
Let q: Quails can fly.
Translate the following into logic symbols:

a) Quails can fly but penguins can't.

$q \wedge \sim p$ Alternatively: $q \wedge (\sim p)$

b) If quails can fly then penguins or quails can fly.

$q \rightarrow p \vee q$

Alternatively: $q \rightarrow (p \vee q)$