

22. $A = P(1 + \frac{r}{n})^{nt}$
 \downarrow ← monthly
 $150000 = P(1 + \frac{.07}{12})^{12 \cdot 25}$

solve for P using division

$$\frac{150000}{(1 + \frac{.07}{12})^{12 \cdot 25}} = P$$

$$\boxed{\$26,198.96 = P}$$

25. $h = 75$ $A = P(\frac{1}{2})^{\frac{t}{h}}$
 $t = 300$
 $P = 3000$ $300(\frac{1}{2})^{\frac{300}{75}} = A$
 $\boxed{18.75 \text{ pounds}} = A$

23. $a = 15$ mice
 $t = 10$
 $N = 375$

$$\frac{375}{15} = \frac{15e^{10k}}{15}$$

$$25 = e^{10k}$$

switch forms $\log_e 25 = 10k$
 $\frac{\ln(25)}{10} = \frac{10k}{10}$
 $\frac{\ln(25)}{10} = k$
 $\boxed{.32} = k$

after 45 months, # of mice??

$a = 15$
 $N ?$
 $t = 45$
 $k = .32$

$$15e^{.32 \cdot 45} = N$$

$$\boxed{N = 26911121.59 \text{ mice!}}$$

number of mice

24. $A = Pe^{rt}$

$A = 4000$
 $P = 3600$
 $r = ?$
 $t = 18 \text{ months} = 1.5 \text{ yrs.}$

$$\frac{3600e^{r \cdot 1.5}}{3600} = \frac{4000}{3600}$$

$$e^{r \cdot 1.5} = \frac{10}{9}$$

switch forms $\log_e \frac{10}{9} = 1.5r$
 $\frac{\ln(\frac{10}{9})}{1.5} = r$
 $.07 = r = \boxed{7\%}$

Dominate this
test and
earn

DONUTS!!

and Knowledge...