

# ANNUITY

$$FV = \text{pymt} \cdot \frac{\left( \left( 1 + \frac{r}{n} \right)^{nt} - 1 \right)}{\left( \frac{r}{n} \right)}$$

ex: 30 → 65  
35 yrs ← t  
n=12 → monthly payments of \$200 at 8.75%  
pymt ← r = .0875

How much will he have when he retires?

$$\text{future value} = 200 \cdot \frac{\left( 1 + \frac{.0875}{12} \right)^{(12 \cdot 35)} - 1}{\frac{.0875}{12}}$$

on calculator  $200 \left( \left( 1 + .0875/12 \right)^{(12 \cdot 35)} - 1 \right) / (.0875/12)$   
\$552,539.96

How much did he contribute?  $200 \times 420 = \$84,000$

How much was interest  $552,539.96 - 84,000 = \$468,539.96$

p340 10, 11, 12

biweekly 26x per year

10)  $\text{pymt} = 110$

$n = 26$

$r = .09875$

$29 \rightarrow 65 = 36 \text{ yrs}$

$36 \times 26 = 936$

a)  $FV = 110 \cdot \frac{\left( \left( 1 + \frac{.09875}{26} \right)^{936} - 1 \right)}{\left( \frac{.09875}{26} \right)}$

$= \$977,555.31$

b)  $936 \times 110 = \$102,960$

c)  $\$874,595.31$