1

$$S = R\left[\frac{(1+i)^n - 1}{i}\right] = 1500\ \frac{(1.04)^{25} - 1}{0.04} \approx \$62.468$$

recall that $i = \frac{r}{m}$, but $m=1$ in this case.

2 Calculate the retirement account for Karen

$$S = 150\left[\frac{(1+0.0033)^{12\cdot 40} - 1}{0.0033}\right] \approx \$175.532.$$

For Matt

$$S = 250\left[\frac{(1+0.0033)^{12\cdot 30} - 1}{0.0033}\right] \approx 172.282.$$

So Karen has a larger retirement account.

3 We use formula (14) on page 318.

$$R = \frac{i\,S}{(1+i)^n - 1} = \frac{0.04 \cdot 2{,}5}{(1+0.04)^{20} - 1} \approx \$0.083954.$$

So \$83,954 need to be deposited annually.

4 In this case $i = \frac{0.06}{12} = 0.005$. Then

$$R = \frac{0.005 \cdot 450.000}{(1.005)^{12 \cdot 20} - 1} = 447.99 \$$$

5 Using the bank interest:

$$280,000 = R\left(\frac{1-(1+i)^{-n}}{i}\right)$$

$$= \left(\frac{1-(1+0.00458)^{-300}}{0.00458}\right)$$

$$R = \$1718$$

Using seller's interest, with the same formula, $R = 1604$.

So the difference on the interest is given by

$$1718 \cdot 300 - 1604 \cdot 300 = \$34.200.$$