

Problem 2

$$\begin{aligned} > \text{Borrow} := 500000 & & \text{Borrow} := 500000 & (1) \end{aligned}$$

$$\begin{aligned} > i := \frac{.06}{12} & & i := 0.005000000000 & (2) \end{aligned}$$

$$\begin{aligned} > \text{owe} := (1 + i)^{30 \cdot 12} \cdot 500000 & & \text{owe} := 3.011287606 \cdot 10^6 & (3) \end{aligned}$$

$$\begin{aligned} > s := \frac{((1 + i)^{30 \cdot 12} - 1)}{i} & & & \\ \text{Payment} \cdot s = \text{owe} & & s := 1004.515042 & (4) \end{aligned}$$

$$\begin{aligned} > \text{Payment} := \frac{\text{owe}}{s} & & \text{Payment} := 2997.752627 & (5) \end{aligned}$$

$$\begin{aligned} > \text{owe5} := (1 + i)^{5 \cdot 12} \cdot \text{Borrow} & & \text{owe5} := 6.744250765 \cdot 10^5 & (6) \end{aligned}$$

$$\begin{aligned} > \text{Paid5} := \frac{((1 + i)^{5 \cdot 12} - 1)}{i} \cdot \text{Payment} & & \text{Paid5} := 2.091532926 \cdot 10^5 & (7) \end{aligned}$$

$$\begin{aligned} > B5 := \text{owe5} - \text{Paid5} & & B5 := 4.652717839 \cdot 10^5 & (8) \end{aligned}$$

$$\begin{aligned} > i2 := \frac{.04}{12} & & i2 := 0.003333333333 & (9) \end{aligned}$$

$$\begin{aligned} > s2 := \frac{((i2 + 1)^{25 \cdot 12} - 1)}{i2} & & s2 := 514.1294665 & (10) \end{aligned}$$

$$\begin{aligned} > \text{owe30} := ((1 + i2)^{25 \cdot 12}) \cdot B5 & & \text{owe30} := 1.262638231 \cdot 10^6 & (11) \end{aligned}$$

$$\begin{aligned} > \text{Payment2} := \frac{\text{owe30}}{s2} & & \text{Payment2} := 2455.876026 & (12) \end{aligned}$$

Problem 3.

$$\begin{aligned} > i := \left(1 + \frac{.06}{365}\right)^{\frac{365}{12}} - 1 & & i := 0.005012121 & (13) \end{aligned}$$

$$\begin{aligned} > B := \frac{((1 + i)^{15 \cdot 12} - 1)}{i} \cdot 1000 & & & (14) \end{aligned}$$

$$B := 2.911795168 \cdot 10^5 \quad (14)$$

Problem 4. Accumulation equals

$$B = 1000(1.06)^{29} + 1000(.98)(1.06)^{28} + 1000(.98)^2(1.06)^{27} + \dots + 1000(.98)^{29}(1.06)^0 \\ = (.98)^{29} 1000 [(1.06/.98)^{29} + (1.06/.98)^{28} + (1.06/.98)^{27} + \dots + 1]$$

$$\begin{aligned} > x := \frac{1.06}{.98} \\ & \qquad \qquad \qquad x := 1.081632653 \end{aligned} \quad (15)$$

$$\begin{aligned} > B := \frac{(x^{30} - 1)}{x - 1} \cdot 1000 \cdot .98^{29} \\ & \qquad \qquad \qquad B := 64975.08561 \end{aligned} \quad (16)$$

$$\begin{aligned} > \frac{.06}{365} \\ & \qquad \qquad \qquad 0.0001643835616 \end{aligned} \quad (17)$$

Problem 34.

$$\begin{aligned} > i := \frac{.084}{12} \\ & \qquad \qquad \qquad i := 0.007000000000 \end{aligned} \quad (18)$$

$$\begin{aligned} > Owe := (1 + i)^{15 \cdot 12} \cdot 149500 \\ & \qquad \qquad \qquad Owe := 5.247420798 \cdot 10^5 \end{aligned} \quad (19)$$

$$\begin{aligned} > s := \frac{((1 + i)^{15 \cdot 12} - 1)}{i} \\ & \qquad \qquad \qquad s := 358.5686381 \end{aligned} \quad (20)$$

$$\begin{aligned} > payment := \frac{owe}{s} \\ & \qquad \qquad \qquad payment := 8398.078599 \end{aligned} \quad (21)$$

Problem 36

$$\begin{aligned} > i := \frac{.06}{12} \\ & \qquad \qquad \qquad i := 0.005000000000 \end{aligned} \quad (22)$$

$$\begin{aligned} > solve\left(\frac{((1 + i)^{12 \cdot n} - 1)}{i} \cdot 100 = 38000, n\right) \\ & \qquad \qquad \qquad 17.78950502 \end{aligned} \quad (23)$$