

## 8.5 Present Value of an Annuity

Example a) How much money must be invested now at 9% / a compounded semi-annually to provide an annuity of \$200 paid every 6 months for 10 years (The first payment begins at 6 months)

$$PV = \frac{R [1 - (1 + i)^{-n}]}{i}$$

Present Value of an annuity formula

$$PV = 200 \left[ \frac{1 - (1 + \frac{0.09}{2})^{-20}}{\frac{0.09}{2}} \right]$$

$$= 2601.59$$

∴ \$2601.59 must be invested today.

$$PV = ?$$

$$i = \frac{0.09}{2}$$

$$n = 10 \times 2 = 20$$

$$R = 200$$

b) How much interest was earned over the investment period?

$$\begin{array}{l} 20 \times 200 = \$4000 \text{ was received} \\ (n \times R) - \$2601.59 \text{ was invested} \end{array}$$

∴ \$1398.41 was earned in interest.

H/W p 520 # 3, 4, 6 and 8  
Holiday H/w!! p 534 # 1-17