**Business Maths**

**Simple interest**

\[ I = \frac{PRT}{100} \]

- \( I \): interest amount
- \( P \): principal or amount invested
- \( r \): annual interest rate
- \( T \): time in years

**Example (Page 568)**

1. \( \text{Find interest} \)
   - \( \text{a)} \) \$680 for 4 years at 5\% p.a.
     - \[ I = \frac{PRT}{100} \]
     - \[ = \frac{680 \times 5 \times 4}{100} \]
     - \[ = \$136.00 \]

2. \( b) \) \$690, 12\% p.a., 15 months = 1\frac{1}{2} \text{ years}
   - \[ I = \frac{PRT}{100} \]
   - \[ = \frac{690 \times 12 \times 1.5}{100} \]
   - \[ = \$103.50 \]

3. \( c) \) \$2500, 13 weeks, 0.1\% \text{ per week}
   - \[ I = \frac{PRT}{100} = \frac{2500 \times 13 \times 0.1}{100} \]
   - \[ = \$32.50 \]

4. \( a) \) \( r = ? \), \( P = 10000 \), \( I = 2000 \), \( T = 2 \) years
   - \[ I = \frac{PRT}{100} \]
   - \[ 2000 = \frac{10000 \times r \times 2}{100} \]
   - Use solve or transpose to make \( r \) the subject
   - \[ r = \frac{2000 \times 100}{10000 \times 2} \]
   - \[ r = 10\% \text{ p.a.} \]

- \( I = \frac{PRT}{100} \)
- \( R = \frac{100I}{PT} \)
- \( P = \frac{100I}{RT} \)
- \( T = \frac{100I}{PR} \)
Simple interest
The types of accounts that accrue simple interest are bonds, debentures and term deposits.
A bond is an investment that is often offered by governments and the interest is paid to the investor quarterly, bi annually or yearly. The bond can be sold during the period before the maturation date, so this allows some flexibility.
A debenture is where an investor lends money to a company or corporation and is paid interest at regular intervals. At the end of the agreed term the principal is returned to the investor.
Term deposits an investor to lend money to a bank or building society for a particular length of time. The money cannot be withdrawn during the period of the investment and interest is paid at the end of the period along with the principal. The money can be withdrawn in special circumstances but interest is decreased.
7. \[ I = \frac{PRT}{100} \]
   \[ = \frac{10000 \times 4.25 \times 3}{100 \times 12} \]
   \[ = \$186.25 \]

3 months is \( \frac{3}{12} \) of a year

or \( R = 0.25 \)

10. \( P = \$7500 \)

(i) \[ I = \frac{7500 \times 12 \times 1.5}{100} \]
   \[ = \frac{7500 \times 18}{100} \]
   \[ = \$1350 + 7500 \]
   \[ = \$8850 \]

New amount = \( \frac{8906.25}{1.5} \)

New amount = principal + interest