

SAMPLE PAPER 2014 (SET F): PAPER 1**QUESTION 2 (25 MARKS)****Question 2 (a)**

$$P = \text{€}5000$$

$$i = 0.06$$

$$t = 8 \text{ years}$$

$$F = ?$$

$$F = 5000(1 + 0.06)^8 = \text{€}7969.24$$

FORMULAE AND TABLES BOOK**Financial mathematics: Compound interest** [page 30]

$$F = P(1 + i)^t$$

 t = Time period (in years) i = (Annual) rate of interest expressed as a decimal F = Final value P = Principal**NOTE:** The time period can be months or weeks instead of years provided the interest rate is given for that time period.**Question 2 (b)** $\text{€}5000 \times 1.2 = \text{€}6000$ ← Multiply $\text{€}5000$ by 1.2 to increase investment by 20%.

$$P = \text{€}5000$$

$$i = ?$$

$$t = 8 \text{ years}$$

$$F = \text{€}6000$$

 $F = P(1 + i)^t$ ← Use the formula to find i . $6000 = 5000(1 + i)^8$ ← Divide both sides by 5000.

$$\frac{6000}{5000} = (1 + i)^8$$

 $1.2 = (1 + i)^8$ ← Use your calculator to get the eighth root on each side.

$$1.2^{\frac{1}{8}} = 1 + i$$

$$1.023 = 1 + i$$

 $\therefore i = 0.023 = 2.3\%$ ← Multiply i by 100 to turn this number into an annual interest rate AER.