Topic Test 6   Investing money

Section I — Multiple choice

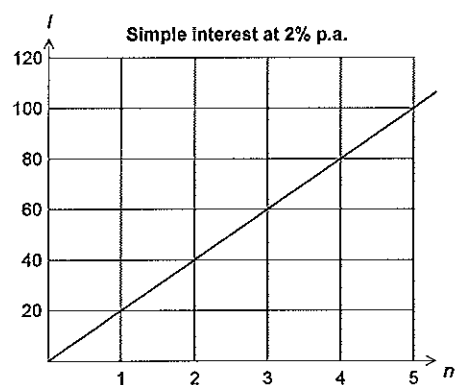1 What is the simple interest on $250 at 5.5% p.a. for 2 years?

   A $25.00   B $27.50   C $34.70   D $275.00

2 Liam invests $4000 at 10% p.a. simple interest. How many years will it take for Liam's investment to double in value?

   A 8 years   B 9 years   C 10 years   D 11 years

3 Using the graph, what is the interest after $2\frac{1}{2}$ years?

   A $40   B $50

   C $60   D $100

Simple interest at 2% p.a.

4 What was the amount of the investment shown in the graph?

   A $20   B $100

   C $120   D $1000

5 Sophie invests $70 000 at 7% p.a. interest compounding annually. What is the amount saved after 5 years? (Answer to the nearest dollar.)

   A $$28 179   B $74 900   C $94 500   D $98 179

6 What is the interest earned for 2 years on $10 000 at 10% p.a. interest compounding monthly? (Answer to the nearest dollar.)

   A $167   B $2100   C $2204   D $88 497

7 There are 50 million shares in a company. What is the dividend if the company declares a net profit of $40.3 million and distributes all of the profit to shareholders?

   A $0.80   B $0.81   C $1.24   D $1.25

8 A house was bought for $860 000 and appreciated at the rate of 6% p.a. What will be the value of the house after 3 years? (Answer to the nearest dollar.)

   A $164 274   B $911 600   C $1 014 800   D $1 024 274

Section II — Short answer

1 Calculate the simple interest earned on $50 000 at 0.04% per day for 30 days.

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2 Hannah wants to earn $625 a year in simple interest. How much must she invest if the simple interest rate is 2.5% p.a.? (Answer to the nearest dollar.)

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3 Bailey is investing $7500 in managed fund. What sum of money will he receive if invested for 4 years at:

a 6% p.a. interest compounding annually?   b 6% p.a. interest compounding quarterly?

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4 The table below shows the future value when $1 is invested at the given interest rate for the given number of periods. The interest is compounded per period. Use the table to calculate the future value of:

a $70 000 invested for 4 years at 6% p.a. compounded annually.

b $200 000 invested for 1 year at 6% p.a. compounded six-monthly.

Period	3%	6%	9%
2	1.061	1.124	1.188
4	1.126	1.262	1.412

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5 Nicholas owned 1300 shares with a market value of $12.52 each. What is the total dividend received from these shares if the dividend yield is 4.5%? (Answer correct to the nearest cent.)

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6 What is the likely price of a shirt in 5 years if it costs $60 and the inflation rate is predicted to be 3% p.a.?

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Topic Test 6 Investing money

Worked solutions

Section 1	Solution	Answer
1	$I = Prn$ $\quad = \$250 \times 0.055 \times 2$ $\quad = \$27.50$	B
2	Doubling the investment requires interest of \$4000 $\quad I = Prn$ $\$4000 = \$4000 \times 0.10 \times n$ $\quad n = \dfrac{\$4000}{\$4000 \times 0.10}$ $\quad\quad = 10$	C
3	The value of I from the graph when $n = 2\dfrac{1}{2}$ is \$50	B
4	$I = Prn$ $\$20 = P \times 0.02 \times 1$ $\quad P = \dfrac{\$20}{0.02}$ $\quad\quad = \$1000$	D
5	$A = P(1+r)^n$ $\quad = \$70\,000 \times (1 + 0.07)^5$ $\quad = \$98\,178.62$ $\quad \approx \$98\,179$	D
6	$A = P(1+r)^n$ $\quad = \$10\,000 \times (1 + \dfrac{0.10}{12})^{2 \times 12}$ $\quad \approx \$12\,204$ $I = \$12\,204 - \$10\,000$ $\quad = \$2204$	C
7	$\text{Dividend} = \dfrac{\$40\,300\,000}{\$50\,000\,000}$ $\quad \approx \$0.81$	B
8	$A = P(1+r)^n$ $\quad = \$860\,000 \times (1 + 0.06)^3$ $\quad \approx \$1\,024\,274$	D

Section II	Solution
1	$I = Prn$ $= \$50\ 000 \times 0.0004 \times 30$ $= \$600$ Simple interest earned is \$600
2	$I = Prn$ $\$625 = P \times 0.025 \times 1$ $P = \dfrac{\$625}{0.025}$ $= \$25\ 000$ Hannah needs to invest \$25 000
3a	$A = P(1+r)^n$ $= \$7500 \times (1+0.06)^4$ $= \$9468.58$ Amount received is \$9468.58
3b	$A = P(1+r)^n$ $= \$7500 \times (1+\dfrac{0.06}{4})^{4\times4}$ $= \$9517.39$ Amount received is \$9517.39
4a	Intersection is 1.262 $FV = 1.262 \times 70\ 000$ $= \$88\ 340$ Future value is \$88 340
4b	Intersection is 1.061 $FV = 1.061 \times 200\ 000$ $= \$212\ 200$ Future value is \$212 200
5	Dividend $= 0.045 \times 1300 \times \$12.52$ $= \$732.42$ Total dividend received is \$732.42
6	$A = P(1+r)^n$ $= \$60 \times (1+0.03)^5$ $= \$69.56$ Price of the shirt is expected to be \$69.56