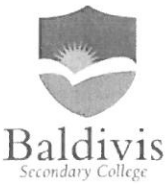


Name:			SCORE:	
Class:				/ 36
	Year 12 Essential Mathematics Unit 2 Test 8 2019 Topic – Interest			
	<p><u>Full working out MUST be shown to get full marks for each question.</u></p>			
Total Time:	40 minutes			
Weighting:	5%			
Equipment:	To be provided by the student: Pen, pencil, ruler, scientific calculator, 1 single sided page of A4 notes			

1. If I invest \$3,000 at 5% p.a. simple interest for 3 years, how much interest will I earn?

(2 marks)

$$3000 \times 0.05 \times 3 = \$450.$$

2. If I invest \$15,000 at 3.5% simple interest for 30 months, how much interest will I earn and how much will my total investment be worth in total at the end of the term?

(4 marks)

$$\$15000 \times 0.035 \times \frac{30}{12} = \$1312.50.$$

$$\$15000 + 1312.50 = \$16312.50$$

for 5 years.

3. If I invested \$1500 earning 6% interest compounded annually. How much will I have at the end of the term?

(2 marks)

$$1500 \left(1 + \frac{6}{100}\right)^5 = \$2007.34$$

4. If I invested \$500 earning 3.25% interest compounded every 6 months. How much will I have at the end of the term?

²
for 8 years

$$\$500 \left(1 + \frac{0.0325}{4}\right)^{2 \times 4} = \$533.44$$

$n = 4$ ✓

(3 marks)

5. Tina earned \$4000 over the summer school holidays. She invested it for 3 years at 5.5% compounded annually.
- a) How much interest will she earn in the first year?

(2 + 2 + 1 + 4 = 9 marks)

$$\$4000 \times 0.055 = \$220$$

- b) How much will be in the account at the end of the 3 years?

$$4000 \left(1 + \frac{0.055}{1}\right)^3 = \$4696.97$$

- c) How much interest will she earn over the 3 years?

$$\$696.97$$

- d) How much more money would Tina have if she had invested in an account that compounded the interest monthly?

$$4000 \left(1 + \frac{0.055}{12}\right)^{3 \times 12} = \$4715.79$$

$n = 12$ ✓

$$\$715.79 - 696.97 = \$18.82$$

6. Nicole borrowed \$1800 from a finance company for 2 years at 19% p.a. simple interest. She decides to pay this monthly over the two years. How much will she repay every month?

(4 marks)

$$1800 \times 2 \times 0.19 = 684 \quad \checkmark \checkmark$$

$$\text{Total } 1800 + 684 = 2484 \quad \checkmark$$

$$2484 \div 24 = \$103.50 \quad \checkmark$$

7. Simone takes out a home loan for \$360 000 with an interest rate of 4.55% compounded monthly. She makes monthly repayments of \$1600. Use this information to complete the table below, showing all your working out in the table.

$$360\,000 \times \frac{0.0455}{12}$$

(12 marks)

Month	Starting Balance	Interest	Repayment	End of month balance
1	360 000 ✓	\$1365. ✓✓	\$1600	\$359765 ✓
2	359765 ✓	\$1364.11 ✓✓	\$1600	359529.11 ✓
3	359529.11 ✓	\$1363.21 ✓✓	\$1600 ✓	\$359292.32 ✓

END OF ASSESSMENT

