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Baldivis Secondary College

Year 12 Essential Mathematics Unit 2
Mini Test 7 2018
Topic – Interest

Full working out MUST be shown to get full marks for each question.

Total Time:	30 minutes
Weighting:	5%
Equipment:	To be provided by the student: Pen, pencil, ruler, scientific calculator, 1 single sided page of A4 notes

1. Find the simple interest on the following amounts **[2 + 2 = 4 Marks]**

a. $4500 at 10% for 5 years

$4500 \times 0.1 \times 5 = \$2250$

b. 12,000 at 7.5% for 2.5 years

$12{,}000 \times \overset{0.075}{\cancel{0.75}} \times 2.5 = \$22500$

2. Find the missing variable in the following equations: **[2 + 2 + 2 = 6 Marks]**

a. Sam earned $55 simple interest at 2% for 5 years, how much was the principle amount?

$\frac{55}{(0.02 \times 5)} = \$550$

b. Shaun earned $1485 from a principle of $4500 across 3 years. What was the simple interest rate?

$\frac{1485}{(4500 \times 3)} = 0.11 \quad R = 11\%$

c. Shauna earned $675 on a principle of $1,500 at 7.5% simple interest across some years. What was the number of years?

$\frac{675}{(1{,}500 \times 0.075)} = 6 \text{ years.}$

3. **Madeline invests in a compound interest fund at 10% (compounded yearly), for 15 years, and puts $8,000 in as principle. What is the value of the account after 15 years? [3 Marks]**

$8,000 \times (1 + 0.1)^{(15)} = \$33,418$

4. **Madeline finds another account with the same interest rate, but compounds twice per year. She puts another $8000 in for 15 years. [3 + 1 = 4 marks]**

   a. *How much does she make after 15 years?*

$8,000 \times \left(1 + \frac{0.1}{2}\right)^{(15 \times 2)} = \$84\,575.$

   b. *Comparing your answer with question 3, which account is better.*

The second account.

5. **Alex buys a work ute for $55,990 that she depreciates for 5 years at 8%. [2 + 3 = 5 marks]**

   a. *How much would Alex lose after one year?*

$55,990 \times (1 - 0.08)^{(5)} = \$36,901$

($19,088) lost

   b. *How much would he lose after the 5 years?*

$55,990 \times (1 - 0.08)^{(1)} = \$51510$

($4479) lost

END OF ASSESSMENT