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| Mathematics Department | |  |
| Course: A1MAA | |
| Topic Title: Test 1 – Calculator Assumed | |
| Student Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ | Date: \_\_\_\_\_\_\_\_\_\_\_\_ | | |
| Special Instructions: Math Applications Formulae Sheet*,* Calculator | Time Allowed: 40 minutes | | |
| and 1 A4 page of notes allowed. **Show all your working clearly** | Marks: / 36 | | |
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1. (3 marks)

A real estate salesman is paid commission of 1.2% of the value of all properties sold. He sells two houses, one for $455 000 and another for $762 000. Calculate the total commission the agent will receive.

2. (3 marks)

In shop A, the marked price of a dining table is $840. The shop manager offers a 9.5% discount on cash sales.

In shop B, the same table is marked at $870 and a 12% discount is offered. Which shop **offers a better deal**? **Show** sufficient working to support your claim.

3. (2 marks)

Assuming that the annual rate of inflation remains steady at 2.9%, what would the value of an item be in three years’ time if it costs $90.00 now?

4. (2, 1 marks)

i) Determine the interest earned on an investment of $860.00 invested at 6.7% per annum simple interest for 9 years.

ii) What will the final value of this investment be after the 9 years?

5. (2 marks)

How much interest will be earned if $42 300 is invested for 120 days in an account that pays 12.5% per annum simple interest?

6. (6 marks)

Complete the following table:

|  |  |  |  |
| --- | --- | --- | --- |
| Cost of item | Selling Price | Profit / Loss? | What was the percentage profit or loss? |
| $450 | $510 |  |  |
| $1200 |  | Profit | 6% |
|  | $800 | Loss | 25% |

Show any necessary working below:

7. (1, 3, 2 marks)

$8600 is invested for 3 years at 6% p.a. compounding interest paid monthly.

i) What is the **monthly** rate of interest?

Below is a portion of the spreadsheet of the above loan. It shows the interest per month and the amount at the end of each month for the final 12 months of the investment.

|  |  |  |  |
| --- | --- | --- | --- |
| Month | Amount at  start of  month | Monthly  Interest | Amount at  end of  month |
| 25 | 9693.57 | 48.47 | 9742.04 |
| 26 | 9742.04 | 48.71 | 9790.75 |
| 27 | 9790.75 | 48.95 | 9839.71 |
| 28 | 9839.71 | 49.20 | 9888.90 |
| 29 | 9888.90 | 49.44 | 9938.35 |
| 30 | 9938.35 | 49.69 | 9988.04 |
| 31 | 9988.04 | 49.94 | 10037.98 |
| 32 | 10037.98 | 50.19 | 10088.17 |
| 33 | 10088.17 | 50.44 | 10138.61 |
| 34 | 10138.61 | 50.69 | 10189.30 |
| 35 | 10189.30 | 50.95 | 10240.25 |
| 36 | 10240.25 | 51.20 | 10291.45 |

ii) **Show** how:

1. The monthly interest of $48.47 has been calculated for month 25
2. The amount at the end of month 25 has been determined

iii) How much interest is earned at the end of the 3 years?

8. (2, 1, 1, 2 marks)

Tom’s annual salary was $82 000. This year he received a 5.5 % pay rise.

i) a) How much more money did Tom receive from the pay rise?

b) What was Tom’s new annual salary after the pay rise?

c) Determine Tom’s new weekly salary after the pay rise?

ii) Frank, Tom’s brother, runs a hardware store. To sell a lawn mower that he has had in the store for 2 years he decides to sell it at a % loss. Thomas sells the lawn mower for $262.50. What was the original price for the mower?

9. (1, 1, 3 marks)

An electronics store increased the prices of all laptops by 8%. A laptop originally cost $995.

1. What was the new price of the laptop after the price increase?

During the end of year sales, all stock was now discounted by 10%.

ii) What is the price of the laptop during the end of year sales?

iii) Calculate the overall **percentage change** in price from the original price.