INTERESTS

A DEFINITIONS

A.1 FINDING THE INTEREST

Ex 1: Louis lends Hugo 100 dollars. After one year, Hugo repays Louis 110 dollars.
Find the interest paid.

☐ dollars

Ex 2: Maria borrows 200 dollars from John. After one year, Maria repays John 230 dollars.
Find the interest paid.

☐ dollars

Ex 3: Jack lends Sarah 500 dollars. After one year, Sarah repays Jack 525 dollars.
Find the interest paid.

☐ dollars

Ex 4: A bank lends 1 000 dollars to a customer. After one year, the customer repays the bank 1 080 dollars.
Find the interest paid.

☐ dollars

A.2 FINDING THE TOTAL AMOUNT

Ex 5: A customer borrows 2 500 dollars from a bank, with 150 dollars of interest.
Find the total amount the customer needs to repay the bank.

☐ dollars

Ex 6: Maria borrows 300 dollars from John with 30 dollars of interest.
Find the amount Maria needs to repay.

☐ dollars

Ex 7: Jack lends Sarah 500 dollars with 50 dollars of interest.
Find the total amount Sarah needs to repay Jack.

☐ dollars

Ex 8: A bank lends 1 000 dollars to a customer with 80 dollars of interest.
Find the total amount the customer needs to repay the bank.

☐ dollars

A.3 FINDING THE PRINCIPAL

Ex 9: Emma repaid 330 dollars in total, including 30 dollars of interest.
Find the original amount (principal) that Emma borrowed.

☐ dollars

Ex 10: Lucas repaid 550 dollars in total, including 50 dollars of interest.
Find the original amount (principal) that Lucas borrowed.

☐ dollars

Ex 11: Sophia repaid 1,080 dollars in total, including 80 dollars of interest.
Find the original amount (principal) that Sophia borrowed.

☐ dollars

Ex 12: Mia repaid 750 dollars in total, including 150 dollars of interest.
Find the original amount (principal) that Mia borrowed.

☐ dollars

B SIMPLE INTEREST

B.1 FINDING THE INTEREST

Ex 13: Find the simple interest on a principal of \$500 at a rate of 3% per year over 5 years.

☐ dollars

Ex 14: Find the simple interest on a principal of \$1 000 at a rate of 4% per year over 3 years.

☐ dollars

Ex 15: Find the simple interest on a principal of \$750 at a rate of 5% per year over 2 years.

☐ dollars

Ex 16: Find the simple interest on a principal of \$1 200 at a rate of 6% per year over 4 years.

☐ dollars

B.2 FINDING THE INTEREST OVER MIXED TIME PERIODS

Ex 17: Find the simple interest on a principal of \$600 at a rate of 4% per year over 18 months.

dollars

Ex 18: Find the simple interest on a principal of \$700 at a rate of 5% per year over 180 days.

dollars (round at two decimal place)

Ex 19: Find the simple interest on a principal of \$800 at a rate of 4% per year over 9 months.

dollars

Ex 20: Find the simple interest on a principal of \$1 200 at a rate of 4% per year over 2 years and 6 months.

dollars

B.3 FINDING THE TOTAL AMOUNT

Ex 21: Jack lends Sarah 500 dollars with simple interest over 3 years at a rate of 3% per year.
Find the total amount Sarah needs to repay Jack.

dollars

Ex 22: Emma borrows 600 dollars from a bank with simple interest over 4 years at a rate of 2.5% per year.
Find the total amount Emma needs to repay the bank.

dollars

Ex 23: Michael lends 800 dollars to a friend with simple interest over 2 years at a rate of 4% per year.
Find the total amount the friend needs to repay Michael.

dollars

Ex 24: Sophia borrows 1 200 dollars with simple interest over 5 years at a rate of 2.5% per year.
Find the total amount Sophia needs to repay.

dollars

C COMPOUND INTEREST

C.1 FINDING THE TOTAL AMOUNT USING A TABLE

Ex 25: \$1000 is placed in an account that earns 10% interest per annum (p.a.), and the interest is allowed to compound over three years. This means the account is earning 10% p.a. in compound interest.
Fill the compound interest table .

Year	Amount	Compound interest
0	\$1000	10% of \$1000 = \$100
1	\$1000 + \$100 = \$1100	10% of \$1100 = \$110
2	\$	
3	\$	

Find the amount at 3 years.

dollars

Ex 26: \$3 000 is placed in an account that earns 20% interest per annum (p.a.), and the interest is allowed to compound over three years. This means the account is earning 20% p.a. in compound interest.
Fill the compound interest table.

Year	Amount	Compound interest
0	\$3 000	20% of \$3 000 = \$600
1	\$3 000 + \$600 = \$3 600	20% of \$3 600 = \$720
2	\$	
3	\$	

Find the amount at 3 years.

dollars

Ex 27: \$3 000 is placed in an account that earns 20% interest per annum (p.a.), and the interest is allowed to compound over three years. This means the account is earning 20% p.a. in compound interest.
Fill the compound interest table.

Year	Amount	Compound interest
0	\$3 000	
1	\$	
2	\$	

Find the amount after 2 years.

dollars

C.2 FINDING THE TOTAL AMOUNT

Ex 28: Find the final amount on a principal of \$10 000 at a rate of 10% per year over 3 years compounded yearly.

dollars

Ex 29:  Find the final amount on a principal of $200 000 at a rate of 5% per year over 3 years compounded yearly.

☐ dollars

Ex 30:  Find the final amount on a principal of $5 000 at a rate of 8% per year over 2 years compounded yearly.

☐ dollars

Ex 31:  Find the final amount on a principal of $5 000 at a rate of 8% per year over 20 years compounded yearly (round at 2 decimal places).

☐ dollars

C.3 FINDING THE BEST OPTION OF INVESTMENT

Ex 32:  You have $8000 to invest for 5 years and there are 2 possible options you have been offered:

- Option 1: Invest at 9% p.a. simple interest.
- Option 2: Invest at 8% p.a. compound interest.
- Calculate the amount accumulated at the end of the 3 years for option 1 (round to the neareast integer)

  ☐ dollars
- Calculate the amount accumulated at the end of the 3 years for option 2 (round to the neareast integer)

  ☐ dollars
- Decide which option to take.
  ☐ Option 1
  ☐ Option 2

Ex 33:  You have $20 000 to invest for 5 years and there are 2 possible options you have been offered:

- Option 1: Invest at 7% p.a. simple interest.
- Option 2: Invest at 6% p.a. compound interest.
- Calculate the amount accumulated at the end of 5 years for option 1 (round to the nearest integer):

  ☐ dollars
- Calculate the amount accumulated at the end of 5 years for option 2 (round to the nearest integer):

  ☐ dollars
- Decide which option to take.
  ☐ Option 2
  ☐ Option 1

Ex 34:  You have $50 000 to invest for 30 years and there are 2 possible options you have been offered:

- Option 1: Invest at 10% p.a. simple interest.
- Option 2: Invest at 9% p.a. compound interest.
- Calculate the amount accumulated at the end of the 30 years for option 1 (round to the nearest integer):

  ☐ dollars
- Calculate the amount accumulated at the end of the 30 years for option 2 (round to the nearest integer):

  ☐ dollars
- Decide which option to take.
  ☐ Option 1
  ☐ Option 2