EXAM PAPERS PRACTICE

Exponential Growth

Question Paper

Question 1

Alex invests $200 for 2 years at a rate of 2% per year simple interest.
Chris invests $200 for 2 years at a rate of 2% per year compound interest.

Calculate how much more interest Chris has than Alex. [4]

Question 2

The population of Olton is decreasing at a rate of 3% per year.
In 2013, the population was 50000.

Calculate the population after 4 years.
Give your answer correct to the nearest hundred. [3]

Question 3

The value of a motorbike is $12 400.
Each year, the value of the motorbike decreases exponentially by 15%.

Calculate the value of the motorbike after 3 years. [2]

Question 4

Maryah borrows $12 000 to start a business.
The loan is for 3 years at a rate of 5% per year compound interest.
The loan has to be paid back at the end of the 3 years.

Calculate the total amount to be paid back. [3]

Question 5

Bruce invested $420 at a rate of 4% per year compound interest.

Calculate the **total** amount Bruce has after 2 years.
Give your answer correct to 2 decimal places. [3]

Question 6

Carol invests $6250 at a rate of 2% per year compound interest.

Calculate the **total** amount Carol has after 3 years. [3]

Question 7

Acri invested $500 for 3 years at a rate of 2.8% per year compound interest.

Calculate the final amount he has after 3 years. [3]

Question 8

Pedro invested $800 at a rate of 5% per year compound interest.
Calculate the total amount he has after 2 years. [2]

Question 9

Eva invests $120 at a rate of 3% per year compound interest.

Calculate the total amount Eva has after 2 years.
Give your answer correct to 2 decimal places. [3]

Question 10

Johan invested $600 for 3 years at 4% per year **compound** interest.

Calculate the final amount he had after three years. [3]

Question 11

Nikhil invests \$200 for 2 years at 4% per year **compound** interest.
Calculate the **exact** amount Nikhil has after 2 years. [2]

Question 12

NORTH EASTERN BANK	SOUTH WESTERN BANK
SAVINGS ACCOUNT	SAVINGS ACCOUNT
5%	4.9%
Per Year	Per Year
Simple Interest	Compound Interest

Kalid and his brother have $2000 each to invest for 3 years.

(a) North Eastern Bank advertises savings with simple interest at 5% per year.
Kalid invests his money in this bank.
How much money will he have at the end of 3 years? [2]

(b) South Western Bank advertises savings with compound interest at 4.9% per year.
Kalid's brother invests his money in this bank.
At the end of 3 years, how much more money will he have than Kalid? [3]

Question 13

Marcel invests $2500 for 3 years at a rate of 1.6% per year simple interest.
Jacques invests $2000 for 3 years at a rate of x% per year compound interest.
At the end of the 3 years Marcel and Jacques receive the same amount of interest.

Calculate the value of x correct to 3 significant figures. [5]

Question 14

The population of the world grows exponentially at a rate of 1.1% per year.

Find the number of years it takes for the population to grow from 7 billion to 7.31 billion.
Give your answer correct to the nearest whole number. [2]

Question 15

It is estimated that the world's population is growing at a rate of 1.14% per year.
On January 1st 2014 the population was 7.23 billion.

(a) Find the expected population on January 1st 2020. [2]

(b) Find the year when the population is expected to reach 10 billion. [2]

Question 16

At the start of an experiment there are 20000 bacteria.
The number of bacteria increases at a rate of 30% per hour.

(a) Work out the number of bacteria after 4 hours. [2]

(b) After how many **whole** hours, from the start of the experiment, will the number of bacteria be greater than one million?

[2]

Question 17

Boris invests $280 for 2 years at a rate of 3% per year compound interest.

Calculate the interest Boris receives at the end of the 2 years.
Give your answer correct to 2 decimal places. [4]

Question 18

Zainab borrows $198 from a bank to pay for a new bed.
The bank charges compound interest at 1.9 % per month.
Calculate how much **interest** she owes at the end of 3 months. [3]
Give your answer correct to 2 decimal places.