



FRACTIONS_PERCENTAGES AND COMPOUND INTEREST

Question 1

(a) Work out $4\frac{3}{5} - 2\frac{1}{10}$

Give your answer as a mixed number.

.....
(2)

(b) Show that $5\frac{3}{5} \div 1\frac{1}{6} = 4\frac{4}{5}$

(3)

Q2

The cost of a first class stamp increased from £1.35 to £1.65.

The cost of a second class stamp increased from 75p to 85p.

Franz says,

“ The percentage increase in the cost of a first class stamp is more than twice the percentage increase in the cost of a second class stamp.”

Is Franz correct?

You must show all your working.

(4 marks)

QUESTION 3

In a sale, the normal prices are reduced by 35%

Alex buys a pair of boots for £44.20

Work out the normal price of the pair of boots

£.....

(2 marks)

QUESTION 4

Polly invests £6500 in a savings account.

She gets compound interest at a rate of

2.8% for the first year

1.6% for each extra year.

(a) Work out the value of Polly's investment at the end of 3 years.

£.....
(3)

Simon buys a van for £12 500

The value of the van depreciates by $x\%$ each year.

At the end of 2 years the value of the van is £7605

(b) Work out the value of x .

$x =$
(3)

QUESTION 5

Prove algebraically that $0.\dot{6}\dot{8}\dot{4}$ can be written as $\frac{339}{495}$

(3 marks)

QUESTION 6

Show that $0.2\dot{1}\dot{8} + 0.3\dot{1}\dot{2}$ can be written in the form $\frac{m}{66}$ where m is an integer.

(3 marks)

QUESTION 7

A library has 3 500 members.

The number of members increases at a rate of 7% per year for 3 years.

Calculate the total number of members at the end of the 3 years.

.....
(4 marks)

QUESTION 8

At the start of 2022 Chloe invested some money in a savings account.

The account paid 4.5% compound interest each year.

At the end of 2022

interest was added to the account then Chloe took £850 from the account.

At the end of 2023

interest was added to the account then Chloe took £1500 from the account.

There was then £3727.09 in the account.

Work out how much money Chloe invested at the start of 2022

You must show all your working.

[4]

Question 9

The normal price of a sofa is reduced by 30% in a sale.
The price of the sofa in the sale is £1155

Work out the normal price of the sofa.

£.....

(2 marks)

Question 10

Sharon is organising a fund-raising lunch for a charity.

She spends

£150 on food

£170 on a hall

£60 on a guest speaker

Sharon sells 66 tickets to the lunch.

Each ticket costs £9.50

Work out the percentage profit Sharon makes for the charity.

.....%

(4 marks)

Question 11

Geoff invests £7500 in a savings account for 3 years.

The account pays compound interest at a rate of 2.8% per year.

Calculate how much Geoff has in this savings account at the end of the 3 years.

£.....

(2 marks)

Question 12

The price of a console increases by 15%

This 15% increase adds £375 to the price of the console.

Work out the price of the console before the increase.

£.....**(2)**

Question 13

Ronnie buys a house with a value of £280 000
The value of Ronnie's house increases by 2.5% each year.

Tom buys a house with a value of £260 000
The value of Tom's house increases by 6% each year.

At the end of 2 years, whose house has the greater value?
You must show how you get your answer.

(4)

QUESTION 14

Some people were asked if they wanted a new car.

60% of the people said yes.

35% of the people who said yes wanted a car with a soft top.

What percentage of the people asked said they wanted a car with a soft top?

.....%

(2)

Question 15

Ezra invests £12 000 for 2 years in an account paying compound interest.

In the first year, the rate of interest is 2.5%

In the second year, the rate of interest is 3.5%

Work out the value of Ezra's investment at the end of 2 years.

£.....

(3 marks)

Question 16

Sheena buys a painting for £140

She sells the painting for £168

Work out her percentage profit.

.....%

(3 marks)

Question 17

Tina bought a van.

In the first year after she bought the van, its value depreciated at a rate of 29% per annum.

In the second year after she bought the van, its value depreciated at a rate of 17% per annum.

At the end of the second year the van was worth £14 968.22

What was the value of the van when Tina bought it?

(3)

Question 18

Using algebra, prove that $2.04\dot{6}$ can be written as $2\frac{7}{150}$

(3 marks)

Question 19

Gillian bought a new speedboat three years ago.

At the end of the first year the value of the speedboat had decreased by 7.5%

The value of the speedboat then decreased by 20% each year for the next two years.

At the end of the three years, the value of the speedboat was £15 392

Work out the value of the speedboat when Gillian bought it three years ago.

£.....(4)

Question 20

At the end of 2017

the value of Tom's car was £25 000

the value of Jim's car was £16 000

At the end of 2020

the value of Tom's car had decreased by 30%

the value of Jim's car had increased by 10%

At the end of 2020, whose car had the greater value?

You must show how you get your answer.

(4 marks)

QUESTION 21

--Hashem puts boxes into small vans and into large vans.

He puts 5 boxes into each small van.

He puts 25 boxes into each large van.

Hashem puts a total of 400 boxes into the vans so that

number of boxes in small vans : number of boxes in large vans = 3 : 5

Hashem says that less than 30% of the vans filled with boxes are large vans.

Is Hashem correct?

You must show all your working.

(5)

QUESTION 22

-Taj buys a racing bike.

He gets a discount of 5% off the normal price.

Taj pays £741 for the racing bike.

(a) Work out the normal price of the racing bike.

£.....
(2)

Jon invests £8000 in a savings account.

The savings account pays compound interest at a rate of

2.6% for the first year

1.5% for each extra year.

(b) Work out the value of Jon's investment at the end of 3 years.

£.....
(3)

QUESTION 23

Evie invested £3550 in a savings account for 3 years.

She was paid 2.6% per annum compound interest for each of the first 2 years.

She was paid $R\%$ interest for the third year.

Evie had £3819.21 in her savings account at the end of the 3 years.

Work out the value of R .

Give your answer correct to 1 decimal place.

(3)

