

- 1 Katy invests £2000 in a savings account for 3 years.

The account pays compound interest at an annual rate of

2.5% for the first year

$x\%$ for the second year

$x\%$ for the third year

There is a total amount of £2124.46 in the savings account at the end of 3 years.

- (a) Work out the rate of interest in the second year.

.....
(4)

Katy goes to work by train.

The cost of her weekly train ticket increases by 12.5% to £225

- (b) Work out the cost of her weekly train ticket before this increase.

£.....
(2)

(Total for Question is 6 marks)

2 Jules buys a washing machine.

20% VAT is added to the price of the washing machine.
Jules then has to pay a total of £600

What is the price of the washing machine with **no** VAT added?

£.....

(Total for Question is 2 marks)

3 Emily buys a pack of 12 bottles of water.
The pack costs £5.64

Emily sells all 12 bottles for 50p each.

Work out Emily's percentage profit.
Give your answer correct to 1 decimal place.

.....%

(Total for Question is 3 marks)

- 4 At time $t = 0$ hours a tank is full of water.

Water leaks from the tank.

At the end of every hour there is 2% less water in the tank than at the start of the hour.

The volume of water, in litres, in the tank at time t hours is V_t

Given that

$$\begin{aligned}V_0 &= 2000 \\V_{t+1} &= kV_t\end{aligned}$$

write down the value of k .

$$k = \dots\dots\dots$$

(Total for Question is 1 mark)

- 5 Renee buys 5 kg of sweets to sell.
She pays £10 for the sweets.

Renee puts all the sweets into bags.
She puts 250 g of sweets into each bag.
She sells each bag of sweets for 65p.

Renee sells all the bags of sweets.

Work out her percentage profit.

$$\dots\dots\dots\%$$

(Total for Question is 4 marks)

- 6 A force of 70 newtons acts on an area of 20 cm^2

The force is increased by 10 newtons.
The area is increased by 10 cm^2

$$\text{pressure} = \frac{\text{force}}{\text{area}}$$

Helen says,

“The pressure decreases by less than 20%”

Is Helen correct?

You must show how you get your answer.

(Total for Question is 3 marks)

- 7 In 2003, Jerry bought a house.

In 2007, Jerry sold the house to Mia.
He made a profit of 20%

In 2012, Mia sold the house for £162 000
She made a loss of 10%

Work out how much Jerry paid for the house in 2003

£.....

(Total for Question is 3 marks)

- 8 A bonus of £2100 is shared by 10 people who work for a company.
40% of the bonus is shared equally between 3 managers.
The rest of the bonus is shared equally between 7 salesmen.

One of the salesmen says,

“If the bonus is shared equally between all 10 people I will get 25% more money.”

Is the salesman correct?

You must show how you get your answer.

(Total for Question is 5 marks)

- 9 Jack and Sadia work for a company that sells boxes of breakfast cereal.

The company wants to have a special offer.

Here is Jack's idea for the special offer.

Put 25% more cereal into each box and do **not** change the price.

Here is Sadia's idea.

Reduce the price and do **not** change the amount of cereal in each box.

Sadia wants her idea to give the same value for money as Jack's idea.

By what percentage does she need to reduce the price?

..... %

(Total for Question is 3 marks)

- 10 Marie invests £8000 in an account for one year.
At the end of the year, interest is added to her account.

Marie pays tax on this interest at a rate of 20%
She pays £28.80 tax.

Work out the percentage interest rate for the account.

..... %

(Total for Question is 3 marks)

- 11** Sean pays £10 for 24 chocolate bars.
He sells all 24 chocolate bars for 50p each.
Work out Sean's percentage profit.

..... %

(Total for Question is 3 marks)

12 Tariq buys a laptop.

He gets a discount of 5% off the normal price.
Tariq pays £551 for the laptop.

(a) Work out the normal price of the laptop.

£.....
(2)

Joan invests £6000 in a savings account.

The savings account pays compound interest at a rate of

2.4% for the first year

1.7% for each extra year.

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

£.....
(3)

(Total for Question is 5 marks)

- 13** At the end of 2017
the value of Tamara's house was £220 000
the value of Rahim's house was £160 000

At the end of 2019
the value of Tamara's house had decreased by 20%
the value of Rahim's house had increased by 30%

At the end of 2019, whose house had the greater value?
You must show how you get your answer.

(Total for Question is 4 marks)