

8300

GCSE MATHEMATICS

Foundation and Higher tier – Questions by Topic

Number

Finding original values in percentage calculations

v1.0

Name _____

Materials

For this paper you must have:

- Mathematical instruments

Information

- The marks for questions are shown in brackets

Advice

- In all calculations, show clearly how you work out your answer

Questions 1 to 4 are **foundation** tier only

For questions 1 to 4 you may use a calculator.



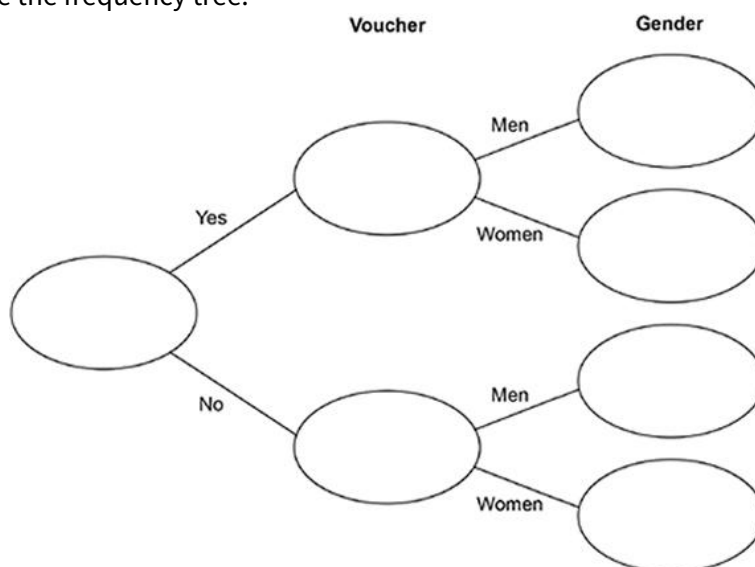
Q1.

The mass of an iceberg is 2 200 000 kg
This value is a 12% reduction from the **original** mass of the iceberg.
Work out the **original** mass of the iceberg.
Give your answer in standard form.

(Total 3 marks)

Q2.

42 men and 38 women visit a restaurant.
44 of these people have a voucher.
Three times as many men as women do **not** have a voucher.
(a) Complete the frequency tree.



(4)

(b) A voucher takes **15% off** the bill.
After using the voucher, the bill for a meal is £27.20
How much was the bill before using the voucher?

(3)

(Total 7 marks)

Q3.

The cost of a ticket increases by 10% to £19.25
Work out the original cost.

(Total 3 marks)

Q4.

384 000 electric cars were sold this year.
This is 20% **more** than last year.
How many were sold **last year**?

(Total 3 marks)

Questions 5 to 14 are **higher** tier only

For questions 5 to 6 you must **NOT** use a calculator.



Q5.

Laura buys a bike and a safety helmet at Wiggins Bike Store.
The prices displayed **do not** include VAT, which is charged at 20%.
Laura works out that she will need to pay £600 for both items when VAT is added, but she will pay less than this because VAT is not charged for the helmet.
She paid £528 for the bike.
Work out the saving by not paying VAT on the helmet.
Give your answer as a percentage of the amount Laura thought she had to pay.

(Total 5 marks)

Q6.

In a sale, a TV is reduced in price by 20%.
The sale price is £280.
After the sale, the price goes back to the original price.
Matt has £340 to spend.
Can he afford the TV when it goes back to its original price?

(Total 3 marks)

For questions 7 to 14 you may use a calculator.



Q7.

The price of a toy increases by 12.5% to £19.53
Work out the **original** price of the toy.

(Total 2 marks)

Q8.

Sophie sells birthday cards.
She adds 40% profit to the cost price.
She sells the cards for £2.66 each.
She wants to increase her profit to 50% of the cost price.
How much should she sell each card for?

(Total 3 marks)

Q9.

The price of a computer is reduced by 23%
The reduced price is £462
By how much is the price reduced?

(Total 4 marks)

Q10.

Paul is competing in a pole vault competition.
His first vault is 4.5 m
His best vault is 12% higher than this.
However, his best vault is 10% lower than the winning vault.
Work out the height of the winning vault.

(Total 4 marks)

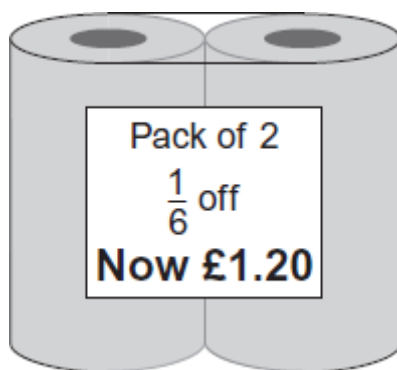
Q11.

I increase a number by 24%
The answer is 6014.
What number did I start with?

(Total 3 marks)

Q12.

The price of a pack of kitchen rolls is reduced by $\frac{1}{6}$
The new price is £1.20



Work out the original price.

(Total 3 marks)

Q13.

It is estimated that there are 7 500 000 000 000 000 grains of sand on the world's beaches.

(a) Write this number in standard form.

(1)

(b) This number is 10% higher than the previous estimate.
Calculate the previous estimate.

Give your answer in standard form to two significant figures.

(3)

(Total 4 marks)

Q14.

Dan has lost weight.
He now weighs 108 kg.
He has lost 10% of his weight since March.
How much did he weigh in March?

(Total 3 marks)