

GCSE QUESTIONS

Questions

Q1. NON-CALCULATOR

Jim rounds a number, x , to one decimal place.
The result is 7.2

Write down the error interval for x .

.....
(Total for question = 2 marks)

Q2. NON-CALCULATOR

A number, n , is rounded to 2 decimal places.
The result is 4.76

Using inequalities, write down the error interval for n .

.....
(Total for question = 2 marks)

Q3. NON-CALCULATOR

A number, y , is rounded to 2 significant figures.

The result is 0.46

Write down the error interval for y .

.....
(Total for question = 2 marks)

Q4. NON-CALCULATOR

Lyn measures the length, x cm, of a piece of string as 3.5 cm correct to the nearest millimetre.

Write down the error interval for x .

.....
(Total for question = 2 marks)

Q5. NON-CALCULATOR

The length, L cm, of a line is measured as 13 cm correct to the nearest centimetre.

Complete the following statement to show the range of possible values of L

..... $\leq L <$
(Total for question is 2 marks)

Q6. NON-CALCULATOR

Kiera used her calculator to work out the value of a number x .
She wrote down the first two digits of the answer on her calculator.

She wrote down 7.3

Write down the error interval for x .

.....
(Total for question = 2 marks)

Q7. CALCULATOR

- (a) Find the value of the reciprocal of 1.6
Give your answer as a decimal.

.....
(1)

Jess rounds a number, x , to one decimal place.
The result is 9.8

- (b) Write down the error interval for x .

.....
(2)
(Total for question = 3 marks)

Q8. CALCULATOR

A plane travels at a speed of 213 miles per hour.

(a) Work out an estimate for the number of seconds the plane takes to travel 1 mile.

..... seconds

(3)

(b) Is your answer to part (a) an underestimate or an overestimate?

Give a reason for your answer.

.....
.....

(1)

(Total for question = 4 marks)

Q9. CALCULATOR

One uranium atom has a mass of 3.95×10^{-22} grams.

(a) Work out an estimate for the number of uranium atoms in 1kg of uranium.

.....

(3)

(b) Is your answer to (a) an underestimate or an overestimate?

Give a reason for your answer.

.....
.....

(1)

(Total for question = 4 marks)

Q10. CALCULATOR

$$v = \sqrt{\frac{a}{b}}$$

$a = 6.43$ correct to 2 decimal places.

$b = 5.514$ correct to 3 decimal places.

By considering bounds, work out the value of v to a suitable degree of accuracy.
Give a reason for your answer.

.....
(Total for question = 5 marks)

Q11. CALCULATOR

$$m = \frac{\sqrt{s}}{t}$$

$s = 3.47$ correct to 3 significant figures

$t = 8.132$ correct to 4 significant figures

By considering bounds, work out the value of m to a suitable degree of accuracy.
Give a reason for your answer.

(Total for question = 5 marks)

Q12. CALCULATOR

$$m = \frac{1}{ps}$$

$p = 5.37$ correct to 2 decimal places.

$s = 2.9$ correct to 1 decimal place.

Calculate the upper bound for the value for m .

You must show your working.

.....
(Total for question = 3 marks)

Q13. CALCULATOR

$$D = \frac{x}{y}$$

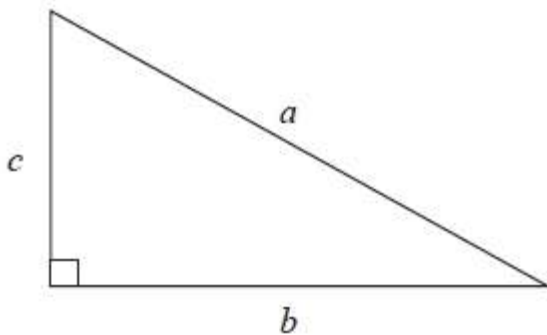
$x = 99.7$ correct to 1 decimal place.

$y = 67$ correct to 2 significant figures.

Work out an upper bound for D .

.....
(Total for question is 3 marks)

Q14. CALCULATOR



a is 8.3 cm correct to the nearest mm

b is 6.1 cm correct to the nearest mm

Calculate the upper bound for c .

You must show your working.

..... cm

(Total for question = 4 marks)

Q15. CALCULATOR

A high speed train travels a distance of 487 km in 3 hours.

The distance is measured correct to the nearest kilometre.
The time is measured correct to the nearest minute.

By considering bounds, work out the average speed, in km/minute, of the train to a suitable degree of accuracy.
You must show all your working and give a reason for your answer.

..... km/minute

(Total for question = 5 marks)

Q16. CALCULATOR

Harley's house has a value of £160 000 correct to 2 significant figures.

(a) (i) Write down the least possible value of the house.

£
(1)

(ii) Write down the greatest possible value of the house.

£
(1)

The value of Rita's house increased by 5%.
Her house then had a value of £210 000

- (b) Work out the value of Rita's house before the increase.

£

(2)

(Total for question = 4 marks)

Q17. CALCULATOR

A train travelled along a track in 110 minutes, correct to the nearest 5 minutes.

Jake finds out that the track is 270 km long.
He assumes that the track has been measured correct to the nearest 10 km.

- (a) Could the average speed of the train have been greater than 160 km/h?

You must show how you get your answer.

(4)

Jake's assumption was wrong.
The track was measured correct to the nearest 5 km.

- (b) Explain how this could affect your decision in part (a).

.....
.....
.....

(1)

(Total for question = 5 marks)

Q18. CALCULATOR

A factory makes 450 pies every day.
The pies are chicken pies or steak pies.

Each day Milo takes a sample of 15 pies to check.

The proportion of the pies in his sample that are chicken is the same as the proportion of the pies made that day that are chicken.

On Monday Milo calculated that he needed exactly 4 chicken pies in his sample.

(a) Work out the total number of chicken pies that were made on Monday.

.....
(2)

On Tuesday, the number of steak pies Milo needs in his sample is 6 correct to the nearest whole number.

Milo takes at random a pie from the 450 pies made on Tuesday.

(b) Work out the lower bound of the probability that the pie is a steak pie.

.....
(2)

(Total for question = 4 marks)

Q19. CALCULATOR

The petrol consumption of a car, in litres per 100 kilometres, is given by the formula

$$\text{Petrol consumption} = \frac{100 \times \text{Number of litres of petrol used}}{\text{Number of kilometres travelled}}$$

Nathan's car travelled 148 kilometres, correct to 3 significant figures.

The car used 11.8 litres of petrol, correct to 3 significant figures.

Nathan says,

“My car used less than 8 litres of petrol per 100 kilometres.”

Could Nathan be wrong?

You must show how you get your answer.

(Total for question = 3 marks)

Q20. CALCULATOR

Jackson is trying to find the density, in g/cm^3 , of a block of wood.
The block of wood is in the shape of a cuboid.

He measures

- the length as 13.2 cm, correct to the nearest mm
- the width as 16.0 cm, correct to the nearest mm
- the height as 21.7 cm, correct to the nearest mm

He measures the mass as 1970 g, correct to the nearest 5 g.

By considering bounds, work out the density of the wood.
Give your answer to a suitable degree of accuracy.

You must show all your working and give a reason for your final answer.

(Total for question = 5 marks)