

Rounding, Estimation & Bounds

Question Paper

Course	Edexcel IGCSE Maths
Section	1. Numbers & the Number System
Topic	Rounding, Estimation & Bounds
Difficulty	Medium

Time allowed: 50
Score: /40
Percentage: /100

Question 1a

The value of p is 4.3

The value of q is 0.4

Both p and q are given correct to the nearest 0.1

Write down the lower bound for p .

[1 mark]

Question 1b

$$r = p + \frac{1}{q}$$

Work out the upper bound for r .

You must show all your working.

[3 marks]

Question 2

$$I = 5(v - u)$$

$v = 14$ correct to 2 significant figures

$u = 8.7$ correct to 2 significant figures

Work out the upper bound for the value of I .

You must show your working.

[3 marks]

Question 3

$$a = \frac{v - u}{t}$$

$v = 37.6$ correct to 3 significant figures.

$u = 11.3$ correct to 3 significant figures.

$t = 8.4$ correct to 2 significant figures.

Work out the upper bound for the value of a .
Show your working clearly.

[3 marks]

Question 4

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

$x = 99.7$ correct to 1 decimal place.

$y = 67$ correct to 2 significant figures.

Work out an upper bound for D .

[3 marks]

Question 5

There are 892 litres of oil in Mr Aston's oil tank.
He uses 18.7 litres of oil each day.

Estimate the number of days it will take him to use all the oil in the tank.

[2 marks]

Question 6

Work out an estimate for $\frac{31 \times 9.87}{0.509}$

[3 marks]

Question 7a

Work out an estimate for the value of $\sqrt{63.5 \times 101.7}$.

[2 marks]

Question 7b

$(2.3)^6 = 148$ correct to 3 significant figures.

Find the value of $(0.23)^6$ correct to 3 significant figures.

[1 mark]

Question 7c

Show that $5^{-2} = \frac{1}{25}$

[1 mark]

Question 8

Sally used her calculator to work out the value of a number y .
The answer on her calculator display began

8.3

Complete the error interval for y .

..... $\leq y <$

[2 marks]

Question 9

$$k = \frac{t}{a - h}$$

$t = 14$ correct to 2 significant figures

$a = 7.8$ correct to 2 significant figures

$h = 3.4$ correct to 2 significant figures

Work out the lower bound for the value of k .
Show your working clearly.

[3 marks]

Question 10

Nav has worked out $\frac{68.3 \times 42.8}{0.021}$ on his calculator.

His answer is 139 201.9048

Without using a calculator and using suitable approximations, check that his answer is sensible.
Show your working clearly.

[2 marks]

Question 11a

$$P = ef$$

$e = 4.8$ correct to 2 significant figures.

$f = 0.26$ correct to 2 significant figures.

Work out the lower bound for the value of P .

Show your working clearly.

Give your answer correct to 3 significant figures.

[2 marks]

Question 11b

$$Q = \frac{t}{w}$$

$t = 2.73$ correct to 3 significant figures.

$w = 0.04$ correct to 1 significant figure.

Work out the upper bound for the value of Q .

Show your working clearly.

Give your answer correct to 2 significant figures.

[2]

[2 marks]

Question 12

To the nearest pound, Jon has £9

To the nearest 50p, Ellie has £6.50

Work out the maximum possible total amount of money.

£.....

[3 marks]

Question 13a

The length of a pipe is 6 metres to the nearest metre.

Complete the error interval for the length of the pipe.

.....m ≤ length <m

[2 marks]

Question 13b

he length of a different pipe is 4 metres to the nearest metre.

Olly says,

“The total length of the two pipes is 11 metres to the nearest metre.”

Give an example to show that he could be correct.

[2 marks]