

Rounding, Estimation and Bounds

GCSE Maths · Practice Questions

20 questions · 62 marks total

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Section A · Foundation

Questions 1–3 are the most straightforward; they get harder as you go on. Question 10 is the most challenging.

1 [1 mark]

Round 4.837 to 1 decimal place.

.....

2 [2 marks]

Round 27 483

(a) to the nearest 100

(b) to the nearest 1000

.....

3 [2 marks]

Round 0.004617 to 2 significant figures.

.....

4 [2 marks]

Round 78 452 to 3 significant figures.

.....

5 [3 marks]

Work out an estimate for 39.2×5.87

.....

6

[3 marks]

Work out an estimate for $\frac{28.7 \times 9.6}{4.9}$

7

[3 marks]

A number, n , is rounded to the nearest 10. The result is 80.

- (a) Write down the smallest possible value of n .
 - (b) Write down the error interval for n using inequalities.
-

8

[3 marks]

A length is measured as 6.4 cm, correct to 1 decimal place.

- (a) Write down the lower bound of the length.
 - (b) Write down the upper bound of the length.
-

9

[4 marks]

Work out an estimate for $\frac{4.87^2 \times 19.6}{0.51}$

10

[4 marks]

Sam estimates 4.8×6.2 as $5 \times 6 = 30$

- (a) Work out the exact value of 4.8×6.2
 - (b) Is Sam's estimate too big or too small? Explain your answer without using your answer to part (a).
-

1 [2 marks]

$x = 8.3$ correct to 1 decimal place.

Write down the error interval for x .

.....

2 [2 marks]

A mass m is 4.6 kg correct to 2 significant figures.

Write down the error interval for m .

.....

3 [3 marks]

$a = 12.4$ and $b = 3.7$, each correct to 1 decimal place.

Work out the upper bound of $a + b$.

.....

4 [3 marks]

$a = 12.4$ and $b = 3.7$, each correct to 1 decimal place.

Work out the lower bound of $a - b$.

.....

5 [4 marks]

A rectangle has length 8.4 cm and width 5.2 cm, each correct to 1 decimal place.

Work out the upper bound of the area of the rectangle.

.....

6 [4 marks]

A runner covers 240 m, measured to the nearest 10 m, in 18 seconds, measured to the nearest second.

- (a) Work out the upper bound of the average speed.
 - (b) Work out the lower bound of the average speed, to 2 decimal places.
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7 [4 marks]

A number x is written as 6.3

- (a) Write the error interval if 6.3 is **rounded** to 1 decimal place.
 - (b) Write the error interval if 6.3 is **truncated** to 1 decimal place.
 - (c) Explain the difference between the two intervals.
-

8 [4 marks]

A metal block has mass 250 g to the nearest 10 g and volume 40 cm^3 to the nearest cm^3 .

Work out the upper bound of the density, in g/cm^3 , to 2 decimal places.

9 [4 marks]

$a = 6.4$ and $b = 2.7$, each correct to 1 decimal place.

- (a) Work out the upper and lower bounds of $\frac{a}{b}$
 - (b) Hence write down the value of $\frac{a}{b}$ to a suitable degree of accuracy, explaining your answer.
-

A car travels 96.5 km, correct to the nearest 0.1 km, in 1.25 hours, correct to the nearest 0.01 hours.

- (a) Work out the upper bound of the average speed, to 2 decimal places.
- (b) Work out the lower bound of the average speed, to 2 decimal places.
- (c) Write the average speed to a suitable degree of accuracy, giving a reason.

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