



- 1
- Write 7.3846 correct to 1 decimal place.
 - Write 7.3846 correct to 2 decimal places.
 - Write 7.3846 correct to 3 decimal places.
 - Write 0.0962 correct to 2 decimal places.
- (4 marks)

Look at the next digit: 5 or more rounds up

a)

7.3 | 846
7.4

b)

7.38 | 46
7.38

c)

7.384 | 6
7.385

d)

0.09 | 62
0.10

2

- Write 58 362 correct to 1 significant figure.
- Write 58 362 correct to 3 significant figures.
- Write 0.004718 correct to 2 significant figures.
- Write 3.0951 correct to 3 significant figures.

(4 marks)

a) first significant figure is 5

5 | 8362
60 000

b)

583 | 62
58 400

c) zeros at the front do not count

0.0047 | 18
0.0047

d)

3.09 | 51
3.10

3

Katie says

" $6.2 \times 48.9 = 3031.8$ "

Without working out the exact answer, explain how you can tell that Katie's answer must be wrong.

(1 mark)

Round each number to 1 significant figure: 6.2 is about 6 and 48.9 is about 50

$6 \times 50 = 300$, so the true answer must be close to 300

3031.8 is about ten times bigger than 300, so Katie's answer must be wrong

4

- a. Truncate 8.479 to 1 decimal place.
 b. Truncate 8.479 to 2 decimal places.
 c. Write 8.479 correct to 1 decimal place. Explain why your answer is different from your answer to part a.

(3 marks)

truncate = chop off, no rounding

a)

8.4 | 79

8.4

b)

8.47 | 9

8.47

c) rounding: next digit 7 rounds up

8.4 | 79

truncating does not round up

8.5

5

- The mass of a parcel is 340 g, correct to the nearest 10 g.
 Complete the error interval for the mass, m grams, of the parcel.

..... $\leq m <$

(2 marks)

Rounding to the nearest 10 g means the true mass is within 5 g of 340 g

Lower bound

$$340 - 5 = 335. \text{ Upper bound: } 340 + 5 = 345$$

$$\text{So } 335 \leq m < 345$$

Include the lower boundary because a value exactly halfway rounds up to the stated result. Exclude the upper boundary because that halfway value rounds up to the next result instead

$$335 \leq m < 345$$

6

- Work out an estimate for the value of

$$\frac{39.6 \times 5.12}{0.48}$$

You must show your working.

(3 marks)

round each number to 1 s.f.

$$\frac{39.6 \times 5.12}{0.48} \approx \frac{40 \times 5}{0.5}$$

$$40 \times 5 = 200$$

$$200 \div 0.5 = 400$$

400

7

- a. Work out an estimate for 62.3×4.87
 b. You are given that $623 \times 487 = 303,401$
 Use this fact to write down the exact value of 62.3×4.87

(3 marks)

a) Round to 1 significant figure

62.3 is about 60 and 4.87 is about 5, so the estimate is $60 \times 5 = 300$

b) 62.3 is $623 / 10$ and 4.87 is $487 / 100$, so the answer is $303,401 / 1000 = 303.401$

b) Check against the estimate: 303.401 is close to 300, so the decimal point is in the right place

8

- You are given that $34 \times 26 = 884$
 Use this fact to write down the value of

- a. 3.4×26
 b. 340×2.6
 c. 0.34×0.26
 d. $884 \div 2.6$

(4 marks)

a) $3.4 = 34 \div 10$

$$884 \div 10 = 88.4$$

88.4

b) $\times 10$ and $\div 10$ cancel

884

c) $\div 100$ and $\div 100$

$$884 \div 10000 = 0.0884$$

0.0884

d) $884 \div 26 = 34$

2.6 is 10 times smaller, so the answer is 10 times bigger

340

9

- A number d is truncated to 1 decimal place.
 The result is 12.4
 Complete the error interval for d .

..... $\leq d <$

(2 marks)

Truncating to 1 decimal place removes everything after the first decimal digit, so the value has not been rounded up

The value must be at least 12.4 but strictly less than 12.5. Removing the later digits from any value in this interval gives 12.4

So $12.4 \leq d < 12.5$

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- 10 A number y is 0.08, correct to 1 significant figure.

Complete the error interval for y .

..... $\leq y <$

(2 marks)

To 1 significant figure, 0.08 has been rounded to the nearest 0.01

Lower bound

$$0.08 - 0.005 = 0.075. \text{ Upper bound: } 0.08 + 0.005 = 0.085$$

$$\text{So } 0.075 \leq y < 0.085$$

Include the lower boundary because a value exactly halfway rounds up to the stated result. Exclude the upper boundary because that halfway value rounds up to the next result instead

$$0.075 \leq y < 0.085$$

- 11 A rectangular floor is 4.2 m long and 3.1 m wide.

Flooring costs £24.60 per square metre.

- By rounding each number to 1 significant figure, work out an estimate for the cost of flooring for the whole floor.
- Is your answer to part (a) an underestimate or an overestimate of the actual cost?
Give a reason for your answer.

(4 marks)

a) Round to 1 significant figure: 4.2 becomes 4, 3.1 becomes 3, 24.60 becomes 20

a) Estimated area

$$4 \times 3 = 12 \text{ square metres}$$

a) Estimated cost

$$12 \times 20 = 240 \text{ pounds}$$

b) 4.2, 3.1 and 24.60 were all rounded down, so the estimate is smaller than the actual cost - it is an underestimate

12

Tia and Sam each ran 100 m.

Tia's time was 12.4 seconds, correct to 1 decimal place.

Sam's time was 12.4 seconds, truncated to 1 decimal place.

- Write down the error interval for Tia's time, t seconds.
- Write down the error interval for Sam's time, s seconds.
- Tia says, "I definitely ran faster than Sam." Is Tia right? Give a reason for your answer.

(4 marks)

a) rounding: half of 0.1 either side

$$12.4 - 0.05 = 12.35$$

$$12.4 + 0.05 = 12.45$$

$$12.35 \leq t < 12.45$$

b) truncating: up to the next 0.1

$$12.4 \leq s < 12.5$$

c) the intervals overlap

Tia could be 12.44, Sam could be 12.40

No, Sam could have been faster