



- 1 Work out an estimate for the value of

$$\frac{48.7 \times 6.12}{0.216}$$

You must round each number to 1 significant figure.

(3 marks)

Round each number to 1 significant figure: 48.7 becomes 50, 6.12 becomes 6, 0.216 becomes 0.2

Numerator

$$50 \times 6 = 300$$

$$300 \div 0.2 = 3000 \div 2 = 1500$$

1500

- 2
- Round 58 420 to 1 significant figure.
 - Round 0.0386 to 1 significant figure.
 - Round 7.46 to 1 significant figure.

(3 marks)

a)

1st sf is 5, next digit 8: round up

60 000

b)

1st sf is 3, next digit 8: round up

0.04

c)

1st sf is 7, next digit 4: round down

7

3

- How many significant figures has 4052?
- How many significant figures has 0.0306?
- How many significant figures has 20.50?

(3 marks)

a)

4 0 5 2 - zero in the middle counts

4

b)

0.0 306 - leading zeros do not count

3

c)

2 0 . 5 0 - the last 0 counts

4

4

- Round 0.004567 to 2 significant figures.
- Round 58 420 to 2 significant figures.
- Round 3.0972 to 2 significant figures.

(3 marks)

a)

2 sf: 0.0045 | 67 - next digit 6, up

0.0046

b)

58 | 420 - next digit 4, down

58 000

c)

3.0 | 972 - next digit 9, up

3.1

5

- a. A calculator display shows 4.826193752. Write this number correct to 3 significant figures.
 b. A calculator display shows 0.0048029. Write this number correct to 3 significant figures.
 c. Write 0.0048029 correct to 1 significant figure.

(3 marks)

a)

4.82 | 6193... next digit 6, up

4.83

b)

0.00480 | 29 next digit 2, down

0.00480

c)

0.004 | 8029 next digit 8, up

0.005

6

Work out $\frac{18.6^2}{7.9}$

- a. Write down all the figures on your calculator display.
 b. Write your answer correct to 3 significant figures.

(3 marks)

a)

$$18.6^2 = 345.96$$

$$345.96 \div 7.9 = 43.79240506$$

b)

43.8 | (4th sf is 9, round up)

43.8

7

The floor area of a hall is 412.7 m².

Mrs Patel says "To 2 significant figures this is 410." Ivan says "To 2 significant figures this is 400."

Who is correct? Explain your answer.

(2 marks)

412.7 - 2 sf: 41 | 2.7

next digit 2: round down = 410

Ivan: 400 is 1 sf

Mrs Patel is correct

8

Use your calculator to work out

$$(8.2 + 3.55) \div 3.25$$

- Give this answer to 6 decimal places.
- Write your answer to part (a) correct to 4 significant figures.

(3 marks)

$$8.2 + 3.55 = 11.75$$

$$11.75 \div 3.25 = 47 \div 13 = 3.615384615..$$

(b) The fifth significant figure is 3, so round down: 3.615

To 6 decimal places this is 3.615385. Keep the original calculator value for any later rounding

9

Use your calculator to work out

$$(2.8^2 - 1.9) \div (0.3 + 0.45)$$

- Write down all the figures on your calculator display.
- Write your answer to part (a) correct to 1 significant figure.

(3 marks)

$$2.8^2 = 7.84, \text{ so the numerator is } 7.84 - 1.9 = 5.94$$

$$\text{The denominator is } 0.3 + 0.45 = 0.75$$

$$5.94 \div 0.75 = 7.92$$

(b) 7.92 to 1 significant figure is 8

10

A whole number, n , is rounded to 3 significant figures. The answer is 47 200.Write down the smallest and the largest possible value of n .

(2 marks)

3 sf: nearest hundred

47 150 rounds up to 47 200

47 249 rounds down to 47 200

smallest 47 150, largest 47 249

11

- a. Write the number 4738 correct to 2 significant figures.
 b. Write the number 0.05372 correct to 2 significant figures.

(2 marks)

Significant figures start at the first non-zero digit. Keep the requested number of digits and inspect the next digit to decide whether to round up. Leading zeros locate the decimal point; they do not count as significant figures

a) The first two significant figures are 4 and 7; the next digit is 3, so round down: 4700

b) The first two significant figures are 5 and 3; the next digit is 7, so round up: 0.054

12

Use your calculator to work out

$$(5.4^2 - \sqrt{53.29}) \div \sin 30^\circ$$

- a. Write down all the figures on your calculator display.
 b. Write your answer to part (a) correct to 3 significant figures.

(3 marks)

Use degree mode because the angle is given in degrees

$$5.4^2 = 29.16$$

$$\sqrt{53.29} = 7.3, \text{ since } 7.3 \times 7.3 = 53.29$$

Numerator

$$29.16 - 7.3 = 21.86$$

$$\sin 30^\circ = 0.5, \text{ so } 21.86 \div 0.5 = 43.72$$

(b) 43.72 to 3 significant figures is 43.7