

Significant figures

Year 7 About 60 minutes Calculator allowed 48 marks



Hints online, answers free with an account:
mathswariz.uk/worksheets/ks3-year-7-significant-figures/

Date _____

A Do Now

Quick questions to start.

- A1** Needed today [1 mark] **A2** Needed today [1 mark]
Round 4728 to the nearest hundred. Round 6.374 to 1 decimal place.

Answer

Answer

- A3** Last lesson [1 mark] **A4** From chapter 4 [1 mark]
Work out 4.7×10^{-2} . Increase £80 by 5%.

Answer

Answer

B Example, then your turn

Year 7

Your teacher works through each example with you. Then try the one beside it.

EXAMPLE 1

Round each number.

- (a) 8627 to 1 significant figure (1 sf)
(b) 46 381 to 2 significant figures (2 sf).

Hint Find the first non-zero digit. Look at the digit after the last one you keep: 5 or more rounds up. Fill the rest of the places with zeros.

- B1** Round each number. [2 marks]

- (a) 3482 to 1 sf (b) 72 950 to 2 sf

Answer (a) (b)

EXAMPLE 2

Round each number.

- (a) 0.047 18 to 2 sf (b) 0.6352 to 1 sf

Hint In a number less than 1, the zeros at the front are not significant. Start counting at the first digit that is not zero.

- B2** Round each number. [2 marks]

- (a) 0.003 851 to 2 sf (b) 0.0726 to 1 sf

Answer (a) (b)

EXAMPLE 3

Round each number.

(a) 7.396 to 3 sf (b) 0.049 96 to 2 sf

Hint When 39 rounds up it becomes 40. Keep the zero at the end: it is one of the significant figures asked for.

B3 Round each number. [2 marks]

(a) 2.4983 to 3 sf (b) 30.97 to 3 sf

Answer (a) (b)

EXAMPLE 4

A machine fills 13 bottles in 50 seconds. Work out the time it takes to fill one bottle. Give your answer to 2 sf

Hint Use a calculator. The full answer has far too many figures for a time, so round it.

B4 A 2 kg bag of rice is shared [2 marks]

equally between 7 pots. Work out the mass of rice in each pot, in grams. Give your answer to 3 sf

Answer

EXAMPLE 5

The crowd at a football match is 28 000, correct to 2 significant figures. Write down the smallest and the largest number of people there could have been.

Hint To 2 significant figures means to the nearest thousand here. Half a thousand either way.

B5 The number of people at a [2 marks]

concert is 6000, correct to 1 significant figure. Write down the least and the greatest number of people there could have been.

Answer least greatest

c Practice

Year 7

C1 How many significant figures [3 marks]

does each number have?

(a) 4.07 (b) 0.0062 (c) 3.40

Answer (a) ... (b) ... (c) ...

C2 Round each number. [2 marks]

(a) 99.62 to 2 sf (b) 0.9973 to 2 sf

Answer (a) (b)

C3 Round each number to 1 significant figure to estimate the value of

$$\frac{61.8 \times 3.94}{0.213}$$

Answer

C4 The table shows the visitors to three places in one year. Round the visitors to

- (a) River Gallery to 2 sf (b) Castle to 1 sf (c) Hill Museum to 3 sf

Place	Visitors
Hill Museum	2 306 418
River Gallery	865 270
Castle	74 950

Answer (a) (b) (c)

C5 Use a calculator to work out $\sqrt{57.3}$. Give your answer to 3 sf [1 mark]

Answer

D Exam-style questions

GCSE Foundation

D1 Answer each part.

(a) Round 0.073 49 to 2 sf [1 mark]

Answer

(b) Round 52 718 to 3 sf [1 mark]

Answer

Total for D1: 2 marks

D2 Ella rounds 0.0307 to 2 significant figures. She writes 0.03. [2 marks]

Explain why Ella is wrong. Write down the correct answer.

Answer

D3 A factory makes 2385 boxes of pens each day. Each box holds 48 pens.

- (a) By rounding each number to 1 significant figure, estimate the number of pens the factory makes in one day. [2 marks]

Answer

- (b) Work out the exact number of pens the factory makes in 5 days. [2 marks]

Answer

- (c) Write your answer to part (b) correct to 2 sf [1 mark]

Answer

Total for D3: 5 marks

D4 A festival lasts two days. The number of people on Saturday is 14 000, correct to 2 significant figures. The number of people on Sunday is 9000, correct to 1 sf

- (a) Work out the least possible total number of people over the two days. [2 marks]

Answer

- (b) Work out the greatest possible total number of people over the two days. [2 marks]

Answer

Total for D4: 4 marks

D5 Use your calculator to work out

$$\frac{18.7^2 - 4.36}{\sqrt{29.2}}$$

- (a) Write down all the figures on your calculator display. [2 marks]

Answer

(b) Write your answer to part (a) correct to 3 sf

[1 mark]

Answer

Total for D5: 3 marks

D6 Tickets for a show cost £19.75 each. A school buys 31 tickets.

(a) Estimate the total cost by rounding each number to 1 sf

[1 mark]

Answer

(b) Is your estimate too big or too small? Work out the exact cost to check. Give a reason for your answer. [2 marks]

Answer

Total for D6: 3 marks

E Extension

Stretch

No route is given. The hints are at the end of the sheet. Use one at a time.

E1 A whole number rounds to 4000 when it is rounded to 1 significant figure. The same number rounds to 3500 when it is rounded to 2 significant figures. Work out the smallest and the largest number it could be. [4 marks]

Answer smallest largest

Extension hints

Cover these with paper. Uncover one at a time.

- E1** **Hint 1** Write down all the whole numbers that round to 4000 to 1 significant figure. Then do the same for 3500 to 2 sf
- Hint 2** To 1 significant figure: from 3500 up to 4499. To 2 significant figures: from 3450 up to 3549.
- Hint 3** The number is in both lists, so it is from 3500 up to 3549. Smallest 3500, largest 3549.

How did it go?

Colour one circle on each line: not yet, nearly, yes.

- I can count the significant figures in a number. ☐ ☐ ☐
- I can round a number to 1, 2 or 3 sf ☐ ☐ ☐
- I can choose a sensible accuracy and estimate a calculation. ☐ ☐ ☐
- I can find the smallest and largest value of a rounded number. ☐ ☐ ☐