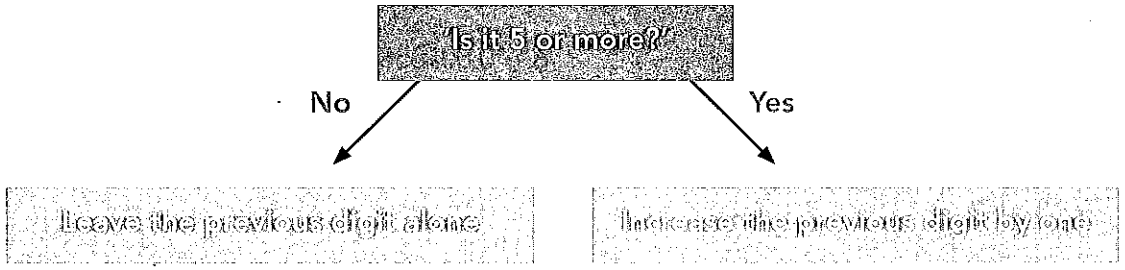
How to round to significant figures

- When asked to round to 4 sf (four significant figures), this means there should be exactly four significant figures in the answer.
- The process is almost the same as rounding to decimal places.
- **Always** check that the rounded number is a similar size to the original number.

Locate the digit to the **right** of the last required significant figure.



Example 1: Round 1.50742 to 4 sf.

The **4** is **not** 5 or more
⇒ leave the 7 alone

∴ 1.50742 = 1.507 (4 sf)

You are asking whether the original number, 1.50742, is closer to 1.507 or 1.508.

Example 2: Round 1.50752 to 4 sf.

The **5** **is** 5 or more
⇒ increase the 7 to 8

∴ 1.50752 = 1.508 (4 sf)

You are asking whether the original number, 1.50752, is closer to 1.507 or 1.508.

Some examples:

Unrounded number	Number of significant figures	Rounded number
123 456	2	120 000
4.26794	4	4.268
17.500	2	18
0.12079	4	0.1208
0.020789	4	0.02079
35.7051	4	35.71
29.5	2	30

Sometimes when you round to 2 dp, you get a number that looks as though it is rounded to 1 dp.

Unrounded number	Number of significant figures	Rounded number
67 291	4	67 290
0.999	2	1.0
4.0962	3	4.10
0.0038962	3	0.00390
699.501	1	700
109.9	3	110
1.795	2	1.80

Your answer **must** have the required number of significant figures, so don't omit the 0s.

Round these to the required number of significant figures.

1 52.8 (2 sf)

2 34 651 (2 sf)

3 0.0678 (2 sf)

4 10 462 (2 sf)

5 109.8 (3 sf)

6 0.001055 (3 sf)

7 741 980 (3 sf)

8 0.0069421 (3 sf)

9 1 671 512 (4 sf)

10 0.069995 (4 sf)

11 67.8 (1 sf)

12 94 267 (1 sf)

13 0.47911 (1 sf)

14 0.0555 (1 sf)

15 0.10683 (1 sf)

16 0.00789 (1 sf)

17 $\sqrt{0.887}$ (3 sf)

18 0.125 x 0.863 (3 sf)

19 1.522 ÷ 0.7 (3 sf)

20 0.563 + 0.679 + 0.441 + 0.105 (3 sf)

21 If 11 and 12 have both been rounded to 2 sf, calculate the lowest and highest possible values for the sum of the unrounded numbers.