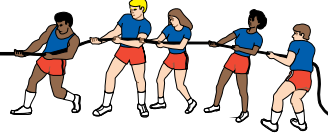


Rounding Numbers

There are **two different ways** of specifying **where** a number should be **rounded**. They are: 'Decimal Places' and 'Significant Figures'. We'll do decimal places first, but the basic method is the same for both...

Decimal Places (d.p.)



To round to a given number of **decimal places**:

- 1) **Identify** the position of the '**last digit**' from the number of decimal places.

'Last digit' = last one in the **rounded version**, not the original number.

- 2) Then look at the next digit to the **right** — called **the decider**.

- 3) If the **decider** is **5 or more**, then **round up** the **last digit**.
If the **decider** is **4 or less**, then leave the **last digit** as it is.

- 4) There must be **no more digits** after the last digit (not even zeros).

EXAMPLE:

What is 7.45839 to 2 decimal places?

$$7.4\mathbf{5}839 = \mathbf{7.46}$$

LAST DIGIT to be written
(2nd decimal place because we're
rounding to 2 d.p. — see below)

DECIDER

The **LAST DIGIT** rounds **UP** because
the **DECIDER** is **5 or more**.

Trickier cases with pesky nines

- 1) If you have to **round up** a **9** (to 10), replace the 9 with 0, and **carry 1** to the left.
- 2) Remember to keep enough **zeros** to fill the right number of decimal places.

EXAMPLES:

1. Round 45.699 to 2 d.p.

$$45.6\mathbf{9}9 \xrightarrow{\text{decider}} 45.\mathbf{6}99 \xrightarrow{\text{last digit — round up}} 45.70 \text{ to 2 d.p.}$$

45.7 has the **same value** as 45.70,
but 45.7 **isn't** rounded to **2 d.p.** so
it would be marked **wrong**.

2. Round 64.996 to 2 d.p.

$$64.9\mathbf{9}6 \xrightarrow{\text{decider}} 64.\mathbf{9}96 \xrightarrow{\text{last digit}} 65.00 \text{ to 2 d.p.}$$

When you carry the 1, this 9 rounds up
to 10 too, so carry 1 to the left again.

It's official — this is the most exciting page of revision ever...

OK, maybe not, but it is important stuff, so learn the steps of the basic method, and make sure you know what to do with those cheeky nines. Then have a crack at these:

- Q1
- a) Round 3.5743 to 2 decimal places.
 - b) Give 0.0481 to 2 decimal places.
 - c) Express 12.9096 to 3 d.p.
 - d) Express 3546.054 to 1 d.p.

[4 marks] 