What is rounding?

Rounding is simplifying a number to make it easier to use.

When a number has been rounded it is less accurate but remains close to the original value.

Why do we need to round decimal numbers?

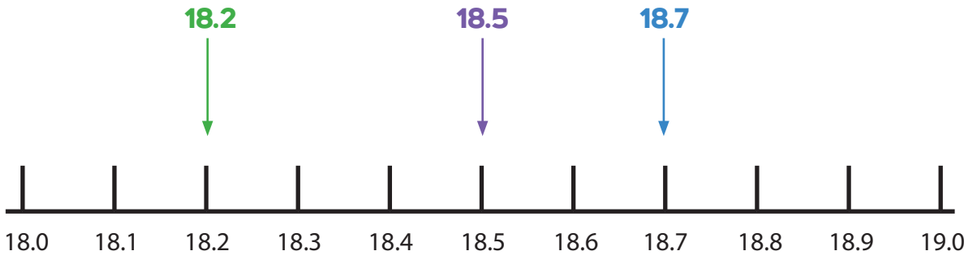
When a calculator displays an answer with digits after the decimal point, it may be useful to round the number to give a shorter answer.

One way to do this is by rounding to the nearest whole number. We can also round to a number of decimal places, depending on how accurate we want the answer to be.

Rewarding Learning

Rounding to the nearest whole number

The numbers indicated by coloured arrows are all between 18 and 19



18.2 rounded to the nearest whole number is **18** because 18.2 is closer to 18 than it is to 19

18.7 rounded to the nearest whole number is **19** because 18.7 is closer to 19 than it is to 18

18.5 is exactly halfway between 18 and 19
For a halfway number, we round **up**. **18.5 rounded** to the nearest whole number is **19**

Rules for rounding to the nearest whole number

- Look at the first digit after the decimal point.
- If the digit is less than 5, the whole number stays the same.

Round down

- If the digit is 5 or more, add one to the whole number.

Round up

Example

A calculator displays the answer 7.6

Round this to the nearest whole number.

- Look at the first digit after the decimal point:

7.**6**
↑

This digit is 6 which is bigger than 5

- If the digit is 5 or more, add one to the whole number and **round up**.

7.6 rounded to the nearest whole number is **8**

Round these numbers to the nearest whole number

51.3

51.3 is between 51 and 52
but is closer to 51

51.3 rounded to the nearest whole number is **51**

429.5

429.5 is halfway between 429 and 430

The rule is to round up

429.5 rounded to the nearest whole number is **430**

2.81

2.81 is between 2 and 3
but is closer to 3

2.81 rounded to the nearest whole number is **3**

Level 5

Round decimals to the nearest whole number.

What is rounding?

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When a calculator displays an answer with digits after the decimal point, it may be useful to round the number to give a shorter answer.

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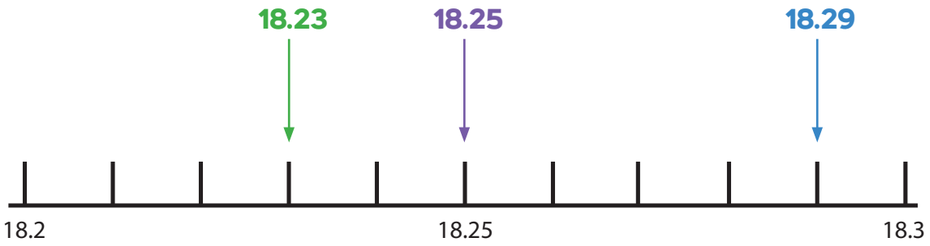
Rewarding Learning

Rounding to one decimal place

The numbers indicated by coloured arrows are all between 18.2 and 18.3



18.23 rounded to one decimal place is **18.2** because 18.23 is closer to 18.2 than it is to 18.3

18.29 rounded to one decimal place is **18.3** because 18.29 is closer to 18.3 than it is to 18.2

18.25 is exactly halfway between 18.2 and 18.3
For a halfway number, we round **up**. **18.25 rounded** to one decimal place is **18.3**

Rules for rounding to one decimal place

- Look at the second digit after the decimal point.
- If that digit is less than 5, the first digit after the decimal point stays the same.

Round down

- If the digit is 5 or more, add one to the first digit after the decimal point.

Round up

Example

A calculator displays the answer 7.62

Round this to one decimal place.

- Look at the second digit after the decimal point.

7.6**2**
↑

This digit is 2 which is less than 5

- If the digit is less than 5, the first digit after the decimal point stays the same and we **round down**.

7.62 rounded to one decimal place is **7.6**

Round these numbers to one decimal place

217.42

217.42 is between 217.4 and 217.5
but closer to 217.4

217.42 rounded to one decimal place is **217.4**

0.75

0.75 is halfway between 0.7 and 0.8

The rule is to round up

0.75 rounded to one decimal place is **0.8**

16.98

16.98 is between 16.9 and 17.0
but is closer to 17.0

16.98 rounded to one decimal place is **17.0**

Level 6

Round decimals to a given number of decimal places.

What is rounding?

Rounding is simplifying a number to make it easier to use.

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Why do we need to round decimal numbers?

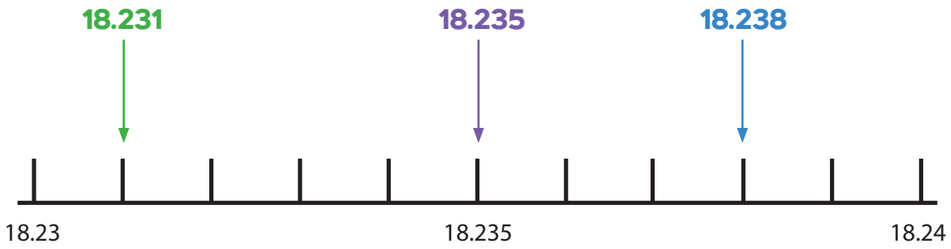
When a calculator displays an answer with digits after the decimal point, it may be useful to round the number to give a shorter answer.

One way to do this is by rounding to the nearest whole number. We can also round to a number of decimal places, depending on how accurate we want the answer to be.

Rewarding Learning

Rounding to two decimal places

The numbers indicated by coloured arrows are all between 18.23 and 18.24



18.231 rounded to two decimal places is **18.23** because 18.231 is closer to 18.23 than it is to 18.24

18.238 rounded to two decimal places is **18.24** because 18.238 is closer to 18.24 than it is to 18.23

18.235 is exactly halfway between 18.23 and 18.24
For a halfway number, we round **up**. **18.235 rounded** to two decimal places is **18.24**

Rules for rounding to two decimal places

- Look at the third digit after the decimal point.
- If the digit is less than 5, the second digit after the decimal point stays the same.

Round down

- If the digit is 5 or more, add one to the second digit after the decimal point.

Round up

Example

A calculator displays the answer 7.625

Round this to two decimal places.

- Look at the third digit after the decimal point.

7.62**5**
↑

This digit 5

- If the digit is 5 or more, add one to the second digit after the decimal point and **round up**.

7.625 rounded to two decimal places is **7.63**

Round these numbers to two decimal places

3.141

3.141 is between 3.14 and 3.15
but closer to 3.14

3.141 rounded to two decimal places is **3.14**

9.025

9.025 is halfway between 9.02 and 9.03

The rule is to round up

9.025 rounded two decimal places is **9.03**

0.308

0.308 is between 0.30 and 0.31
but is closer to 0.31

0.308 rounded to two decimal places is **0.31**

Level 6

Round decimals to a given number of decimal places.