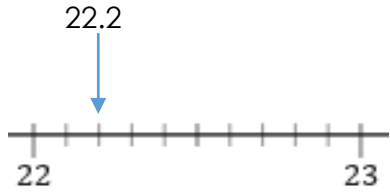


## Year 8 Mastery Unit 5 – Accuracy & Estimation

### Rounding Using a Number Line



Using this number line I can see that 22.2 is nearer to 22 than 23.

22.2 rounded to the nearest integer is 22.



57218 rounded to the nearest 10 is 57220



57218 rounded to the nearest 100 is 57200



20.581 rounded to 1 decimal place is 20.6



20.581 rounded to 2 decimal places is 20.58

Keyword/Skill	Definition/tip
Integer	A whole number - can be positive or negative or zero.
Number	Describes a quantity or value. Can be a word or figure or symbol.
Digit	A symbol used to show a number.
Place Value	The value of where a digit is in the number.
Decimal place	The position of a digit to the right of a decimal point.
Significant Figure	Numbers beginning with the left non zero digit OR beginning with the first non zero digit after the decimal point if there are zero digits.
Rounding	Change a number to a more convenient but less accurate value.
Inequality	'Not equal to' Inequality symbols $\neq$ not equal to, $\geq$ greater than or equal to, $\leq$ less than or equal to, $>$ greater than, $<$ less than, $=$ equal to.
Error interval	A range of values that could be taken before rounding/truncating.
Estimation/ estimate	To make an approximate or rough calculation based on rounding.
Accuracy	How close a measured value is to the actual (true) value
Approximate	Not exact, but close enough to be used

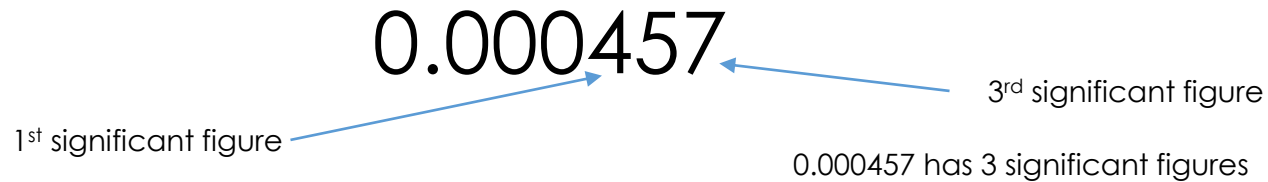
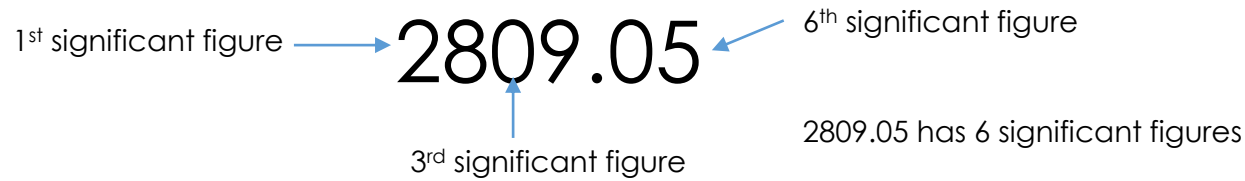
Other topics/Units this could appear in:

- Rounding & Error Intervals
- Upper & Lower Bounds

## Year 8 Mastery Unit 5 – Accuracy & Estimation

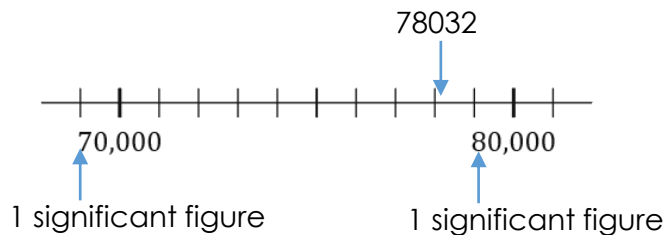
### Significant Figures

Significant figures are the first non zero digit in the number



### Rounding to Significant Figures

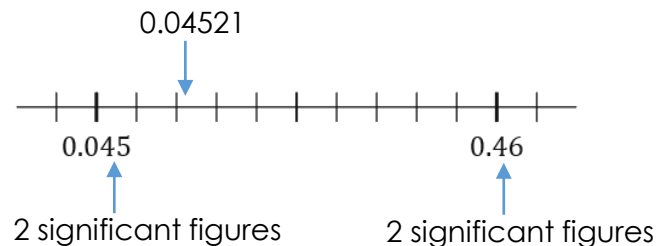
Round 78032 to 1 significant figure



78032 is closer to 80000

78032 rounded to 1 significant figure is 80000

Round 0.04521 to 2 significant figures



0.04521 is closer to 0.45

0.04521 rounded to 2 significant figures is 0.45

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Other topics/Units this could appear in:

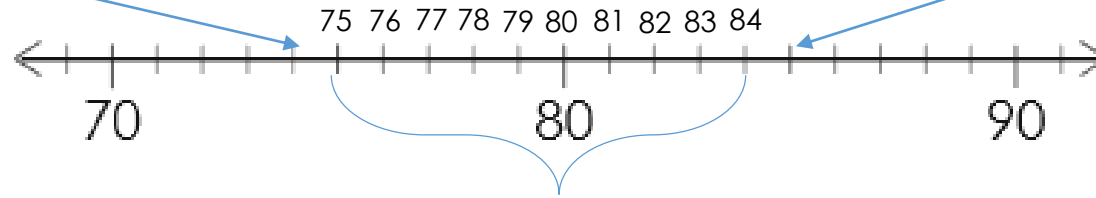
- Rounding & Error Intervals
- Upper & Lower Bounds

## Year 8 Mastery Unit 5 – Accuracy & Estimation

### Error Intervals

A number,  $x$ , rounded to the nearest 10 is 80

74 rounds to 70  
so it can't be that



85 rounds to 90  
so it can't be that

These numbers all round to 80, so these are the range of values that the number could have been.

We can represent this as an inequality:  $75 \leq x < 85$

### Estimating

We use estimation to make challenging calculations simpler. It also helps check answers to determine how accurate they are.

Example:

By rounding to the nearest 10, estimate  
 $83 + 29 + 36$ :

$$83 + 29 + 36 \approx 150$$

$$\begin{array}{c} \downarrow \quad \quad \quad \uparrow \\ 80 + 30 + 40 = 150 \end{array}$$



This means 'approximately equal to'

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