

Topics

- Rounding
- Error intervals
- Truncation
- Estimation

What do I need to be able to do?

- To round numbers to the nearest 10, 100, 1000 etc
- To round numbers to given decimal places/significant figures
- To estimate calculations
- To find error intervals

NUMBER

Autumn Term

Number

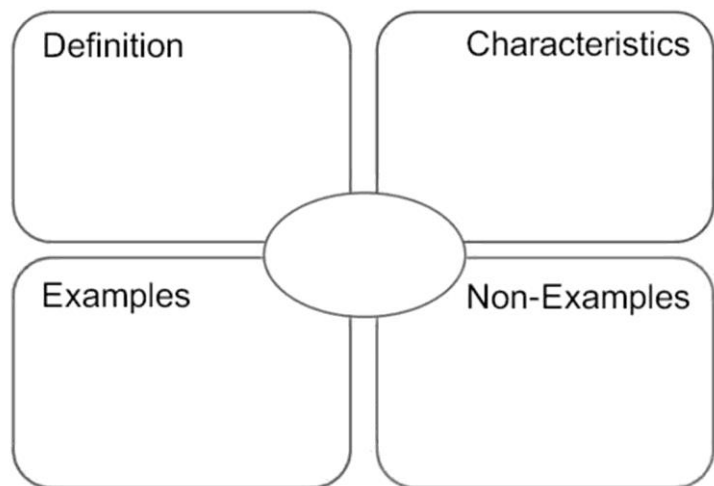
Key Vocabulary

Round	Making a number simpler but keeping its value close to what it was. The result is less accurate
Significant	The number of digits that are meaningful; they have an accuracy matching our measurements
Integer	A number with no fractional part
Decimal	Based on 10. Decimal number is often used to mean a number that uses a decimal point
Lower Bound	A value that is less than or equal to every element of a set of data
Upper Bound	A value that is greater than or equal to every element of a set of data
Estimate	To find a value that is close enough to the right answer
Root	A square root of a number is the value that, when multiplied by itself gives the number

Career Links

Being able to confidently work with numbers is a great skill to have and has lots of links with a number of careers such as:

- Accountancy/banking
- Insurance
- Chef
- Construction
- Hairdressing



$$\frac{348 + 692}{0.526} \approx \frac{300 + 700}{0.5} = 2000$$

Rounding in the real world

Journalists use rounded numbers in headlines to make them easier to understand and have more impact.

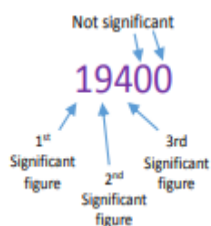


Decimal places (d.p.)

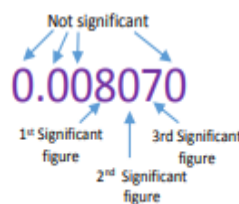
1. **Identify the position** of the decimal place to be rounded to, e.g. 2d.p. would be the 2nd digit after the decimal place.
2. Then look to the **right** of this digit, this is called the **decider**, this number now decides whether the decimal place is rounded up or kept the same.
3. If the **decider is 5 or more then round the digit up.**
4. If the **decider is 4 or less then leave the digit as it is.**

Significant figures.

Significant figures (s.f) start from the first non-zero digit in a number. After that any number (including 0) is the next significant digit.



= 19000 when rounded to 2 significant figures.



= 0.0081 when rounded to 2 significant figures

Estimating square roots

- 1) Find the two consecutive square numbers either side.

E.g. $\sqrt{48}$

The two consecutive square numbers are 36 and 49.

- 2) Find the **square roots** of these two numbers: $\sqrt{36} = 6$ and $\sqrt{49} = 7$.

Therefore the estimate of $\sqrt{48}$ would be between 6 & 7.

This can then lead onto estimating the value, as 48 is close to 49, I would estimate that $\sqrt{48} = 6.9$



Topics

- Converting between fractions, decimals and percentages
- Percentages of amounts

What do I need to be able to do?

- Be able to convert between fractions, decimals and percentages confidently and efficiently
- Be able to write a quantity as a fraction of another
- Be able to find percentages of an amount

NUMBER

Autumn term

Fractions, decimals and percentages

Key Vocabulary

Percentage	Parts per 100 (%)
Equivalent	Having the same value
Convert	The change a value or expression from one form to another
Fraction	How many parts of a whole
Decimal	Based on 10. Decimal number is often used to mean a number that uses a decimal point

Career Links

Being able to confidently work with numbers is a great skill to have and has lots of links with a number of careers such as:

- Accountancy/banking
- Insurance
- Engineering
- Construction
- Carpenter

Definition

Characteristics

Examples

Non-Examples

Top tips - To convert:

- Percentages to decimals divide by 100.
- Decimals to percentages multiply by 100.
- Percentages to fractions, put over 100.
- Fractions make sure the denominator is 100.

F	D	P
$\frac{1}{100}$	0.01	1%
$\frac{1}{10}$	0.1	10%
$\frac{1}{5}$	0.2	20%
$\frac{1}{4}$	0.25	25%
$\frac{1}{2}$	0.5	50%
$\frac{3}{4}$	0.75	75%

To calculate any percentage it is useful to start with 10%.

$$30\% \text{ of } 120: 10\% = 120 \div 10 = 12$$
$$30\% = 3 \times 12 = 36$$

To find 10% we divide by 10.

To find 30% we multiply 10% by 3.

$$80\% \text{ of } 120: 80\% = 0.80$$
$$80\% \text{ of } 120 = 0.80 \times 120 = 96$$

Change the percentage to a decimal and then multiply.

$$33\% \text{ of } 90: 33\% = 0.33$$
$$33\% \text{ of } 90 = 0.33 \times 90 = 29.7$$

Be careful if the percentage is less than 10.

$$4\% \text{ of } 88: 4\% = 0.04$$
$$4\% \text{ of } 88 = 0.04 \times 88 = 3.52$$

Take care using decimal percentages, still divide by 100.

$$12.5\% \text{ of } 42: 12.5\% = 0.125$$
$$12.5\% \text{ of } 42 = 0.125 \times 42 = 5.25$$

