Year 9 Maths: Topics 1&2 Number & Percentages

Week 1

This topic we are going to learn about different types of numbers

Integers are whole numbers and can be positive or negative e.g. 3, 49, -5, -29

Rational numbers can be made by dividing two integers e.g. $\frac{3}{4}$ *or* $-\frac{7}{12}$

Irrational numbers cannot be expressed as a fraction e.g. $\sqrt{3}$ *or* π

If a number cannot be simplified to remove the square or cube root it is a **surd** e.g. $\sqrt{5}$ is a surd whereas $\sqrt{9}$=3 so this is not a surd.

Week 2

This week we going to find **the Highest Common Factor (HCF)** of numbers. This means the largest number that will go into all the numbers in the question.

We are also going to find the **Lowest Common Multiple (LCM)** of numbers which is the smallest number that the numbers in the question will go into.

We are going to work with numbers in **standard form** e.g. A x 10^n where A is a number between 1 and 10 and n is an integer. Standard form is used a shorter way of writing long numbers.

Week 3

Percentages tell you the amount out of 100.

To find 50% of an amount divide by 2.

To find 25% of an amount divide by 4.

To find 10% of an amount divide by 10.

To find 1% of an amount divide by 100.

You can then add several of these chunks together to find other percentages e.g. 35% = 25% + 10%

Or you could find 1% and multiply it by the percentage you want e.g. 1% x 35

We will use these skills to solve everyday problems e.g. how much tax you need to pay or how much interest you get.

Week 4

Percentage increase/ decrease is when we increase/decrease an amount by a percentage of that amount.

E.g. To work out 10% increase on £25 you work out 10% of £25 and then add it on to £25

We will also work out **percentage change** to say by how much something has gone up or down by using the formula $\frac{Change}{Amount}$ x 100

E.g. it was £20 but it is now £15 so it has gone down by $\frac{5}{20}$ x 100 which is 25%

Week 5

This topic we are going to put maths into the real world.

Interest is money added on to bank accounts or loans

Compound Interest is interest that is repeatedly added over several years

Taxes on wages are deducted automatically

Exchange rates are used when buying and selling abroad or holidaying

Budgeting is working out how much you have to spend on items.

Key Words

Integers are whole numbers.

Rational Numbers are numbers made from fractions.

Irrational numbers are numbers that cannot be made from a fraction.

A **Surd** is a root that can be simplified to an integer.

Standard form is a shorter way of writing long numbers.

Percentages tell you how many out of one hundred.

Percentage change describes how much it has gone up or down by.

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Week 1

Questions	Answers
What is an integer?	Integers are whole numbers and can be positive or negative.
If a number is made from a fraction, what kind of number is it?	If a number is made from a fraction it is a rational number.
What is an irrational number?	An irrational number cannot be made from a fraction.
How do you know if a number is a surd or not?	If the root can be simplified to give an integer it is a surd. If it cannot be simplified it is not a surd.
What kind of numbers are 3 and -29?	3 and -29 are integers.

Week 2

Questions	Answers
What do you call the largest number that goes into two other numbers?	The largest number that goes into two other numbers is the highest common factor.
What do you call the lowest number that two other numbers go into?	The lowest number that two other numbers go into is called the lowest common multiple.
What abbreviations do we use for these terms?	HCF and LCM.
Why do we use standard form?	We use standard form as a shorter way of writing really long numbers.
What are the rules of standard form?	The rules of standard form are that the front number needs to be between 1 and 10 and the power has to be an integer.

Week 3

Questions	Answers
What do percentages tell you?	Percentages tell you how many out of 100.
How would you find 10% of an amount	To find 10% of an amount you divide it by 10.
If I divide an amount by 4 what percentage have I found?	If I divide an amount by 4 I have found 25%.
How could I work out 35% of a number?	To work out 35% of a number I could work out 25% and 10% and add them together.
Give me an example of percentages used in real life.	An example of percentages in real life is interest on your bank account.

Week 4

Questions	Answers
What does increase mean?	Increase means to make something larger.
How would you find a 10% increase?	To find a 10% increase you find 10% of the amount and add it on to the original amount.
What does a percentage change tell you?	Percentage change tells you how much something has gone up or down by.
10% of 25 is 2.5 so what is a 10% increase of £25?	A 10% increase of £25 is £25 + £2.50 = £27.50
What is the formula for finding percentage change?	The formula for finding percentage change is $\frac{Change}{Original\ Amount} \times 100$

Week 5

Questions	Answers
Is interest money added on or taken away?	Interest is money added on.
What is taken away from your wages automatically?	Tax is taken away from your wages automatically.
When will you need to use exchange rates?	You use exchange rates when you travel abroad or buy things internationally.
What does budgeting mean?	Budgeting means planning how to spend your money.
What is it called when interest is applied for several years?	When interest is applied for several years it is called compound interest.

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Percentages tell you how many out of one hundred.
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