

I should already know:

- How to apply the 4 operations to integers
- How numbers work below 0

I will learn:

To represent and order negative numbers

To add and subtract negative numbers

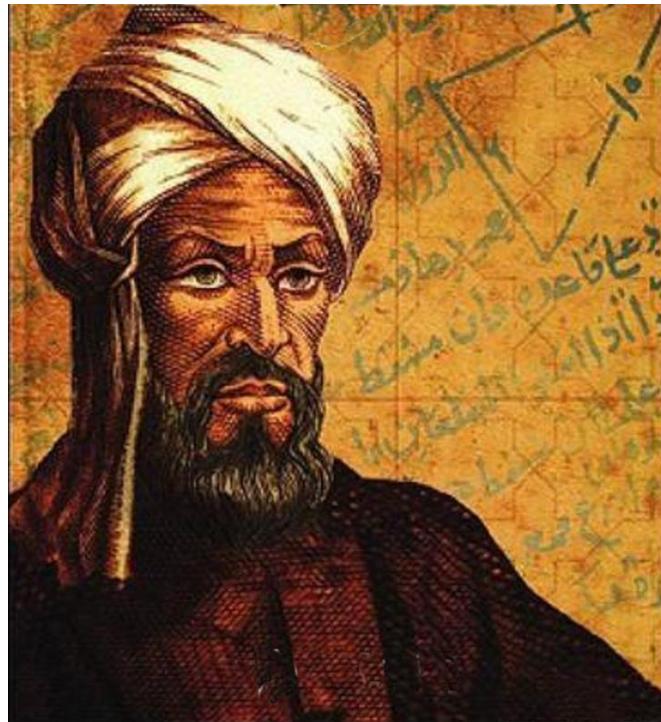
To multiply and divide negative numbers

To form algebraic equations, expressions and inequalities

To substitute into and solve expressions and equations

Key Words

Variable	A letter used to represent an unknown number e.g. x
Term	Each part of an expression e.g. $2x$; 4 ; x^2
Expression	A mixture of numbers and letters e.g. $2x + 5$
Equation	Two expressions equal to one another e.g. $2x + 5 = 10$
Solve	Find the value of the variable



*Muhammad ibn Mūsā al-Khwārizmī, whose book *al-Kitāb al-mukhtaṣar fī ḥisāb al-jabr wal-muqābala* is the origin of the word algebra*

Greater Depth Challenge

Can you use algebra to explain areas of maths that you have studied before?

Further Reading

Hegarty Maths

This will help in the future:

Developing a sense of algebra allows the true power of maths to be uncovered. Algebra allows calculations to be generalized so that maths can solve problems



Knowledge Organiser Focus:

Negative numbers, Algebra, equations and inequalities

1. Negative numbers		2. Operations with negatives		3. Algebraic notation	
Question	Answer	Question	Answer	Question	Answer
What is the definition of an integer?	A positive whole number, a negative whole number or 0	What is the definition of an operation?	The four operations in maths are +, -, x, ÷	What is the definition of algebra?	Algebra is the use of letters and symbols in maths, to represent unknown numbers
What is a positive number?	A number that is greater than zero	What affect does adding have?	Adding increases the value of a number	What is a term?	The separate parts of an expression
What is a negative number?	A number that is less than zero	What affect does adding a negative number have?	Adding a negative decreases the value of a number	What is a variable?	An unknown number represented by a letter
What notation tells us that a number is negative?	A – in front of a number shows that it is negative	What happens when you multiply by a negative?	Multiplying by a negative number changes the sign (+/-) of the number	What does 7y mean?	7 x y
What types of numbers can be negative	All types of numbers can be negative. Fractions, decimals and integers	What happens when you divide by a negative?	Dividing by a negative number changes the sign (+/-) of the number	What does ab mean?	a x b
What is absolute value of a number	The absolute value tells us the size of a number, regardless of if its positive or negative	What is commutativity?	The operation can be applied to two numbers in any order	What does 3uv mean?	3 x u x v
				What does $\frac{x}{4}$ mean?	$x \div 4$

4. Sequences		5. Expressions		6. Equations	
Question	Answer	Question	Answer	Question	Answer
What is the definition of a sequence?	A sets of numbers, shapes, or other mathematical objects, that follow a particular rule.	What is an expression?	An expression is one or more terms that represent the value of something.	What is an equation?	An equation shows that two or more mathematical expressions are equal. It will contain at least one equality sign.
What does consecutive mean?	One after the other.	What does substitute mean?	Replace the letters with the numbers	What is a coefficient?	The number in front of the variable
What is a linear sequence?	A sequence that increases by the same amount each time.	What does simplify mean?	Collect the like terms	What is the perimeter?	The total length around all the sides of a shape
What is the definition of a non-linear sequence?	A sequence that does not increase by the same amount each time.	What does expand mean?	Multiply the coefficient outside the brackets with each term inside the brackets	What is an inequality?	An inequality shows two or more terms that are not equal. This can be shown using the inequality symbols.
What is a Fibonacci sequence?	In a Fibonacci sequence each number is the sum of the two numbers before it	What does factorise mean?	Use the distributive law to write an expression using a bracket	What are the 4 inequalities symbols?	$<, \leq, >, \geq$
What does the “n” represent in an nth term rule?	“n” is the term number in a sequence.				



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What is the definition of an integer?		What is the definition of an operation?		What is the definition of algebra?	
What is a positive number?		What affect does adding have?		What is a term?	
What is a negative number?		What affect does adding a negative number have?		What is a variable?	
What notation tells us that a number is negative?		What happens when you multiply by a negative?		What does 7y mean?	
What types of numbers can be negative		What happens when you divide by a negative?		What does ab mean?	
What is absolute value of a number		What is commutativity?		What does 3uv mean?	
				What does $\frac{x}{4}$ mean?	

4. Sequences		5. Expressions		6. Equations	
Question	Answer	Question	Answer	Question	Answer
What is the definition of a sequence?		What is an expression?		What is an equation?	
What does consecutive mean?		What does substitute mean?		What is a coefficient?	
What is a linear sequence?		What does simplify mean?		What is the perimeter?	
What is the definition of a non-linear sequence?		What does expand mean?		What is an inequality?	
What is a Fibonacci sequence?		What does factorise mean?		What are the 4 inequalities symbols?	
What does the "n" represent in an nth term rule?					