Year 10 Maths Learning Journey

Summer Term 4

Using Number: Indices and roots

Core knowledge	Reference number
Square and cube numbers (R) "What's the difference between the square of a number and the square root of a number?"	WORKSHEET
Calculate higher powers and roots "What does "to the power (e.g.) 4" mean? Can you say this another way"	WORKSHEET
Powers of ten and standard form (R) "How can you tell if a number is written in standard form or not?"	WORKSHEET
The addition and subtraction rules for indices (R) "What is the difference between a base and an index?"	WORKSHEET
Understand and use the power zero and negative indices "What is the result when you divide a number by itself?"	WORKSHEET
Work with powers of powers "Will $(a\ b)^{c}$ be the same as, or different from $(a^{c})^{b}$? Why?"	WORKSHEET
Understand and use fractional indices (H) "What's the difference between "finding one half" and "raising to the power one half"?"	WORKSHEET
Calculate with numbers in standard form (R) "How do you input a number in standard form in your calculator? Is it the same or different if the power of 10 is negative?"	WORKSHEET

Learning Checkpoints

LC Title	Completed	Dirt
Indices and roots		

Key Vocabulary

Base: The number that gets multiplied when using an exponent

Billion: the number equivalent to the product of a thousand and a million; 1,000,000,000 or 109.

Cube: In geometry, a three-dimensional figure with six identical, square faces. Adjoining edges and faces are at right angles.

Estimate: To arrive at a rough or approximate answer by calculating with suitable approximations for terms

Exponent: the number of times a number is multiplied by itself.

Fourth root: A fourth root is what number multiplied by itself four times will yield the target number.

Index/indices: number that tells us how many times a term has been multiplied by itself. The plural of index is indices.

Integer: Any of the positive or negative whole numbers and zero. Example: 2, -1,

Million: the number equivalent to the product of a thousand and a thousand; 1,000,000 or 106.

Negative: An integer less than 0.

Non-unit fraction: A non-unit fraction is a fraction where the numerator is not 1.

Power/index/exponent: a number positioned above and to the right of another (base). Can be negative, zero or fractional

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Prime: A whole number greater than 1 that has exactly two factors, itself and 1.

Prime factor: a natural number, other than 1, whose only factors are 1 and itself.

Square root: A number whose square is equal to a given number

Simplify: Reduce to its simplest form.

Square: The square of a number is the product of the number and itself.

Standard form: the form which numbers are recorded as a number between 1 and 10 multiplied by a power of ten; used for very large and very small numbers

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Unit fraction: A fraction that has 1 as the numerator and whose denominator is a non-zero integer