

Unit 1b: Number

Year 9 Road Map

In this unit you will learn about number. The aims are as follows:

LG1: Knowledge

LG2: Application

LG3: Skills

Level		Learning Goals/Outcomes/Content	Dr Frost Videos	 R	 A	 G
1	S	Find squares and cubes:	97			
2	S	Recall integer squares up to 10 x 10 and the corresponding square roots;	42, 157d			
3	S	Understand the difference between positive and negative square roots;	157e			
4	S	Recall the cubes of 1, 2, 3, 4, 5 and 10;	88c			
5	SC	Use index notation for squares and cubes;	158g			
6	SCE	Recognise powers of 2, 3, 4, 5;	157a			
7	SCE	Evaluate expressions involving squares, cubes and roots:	157i			
8	SCE	Add, subtract, multiply and divide numbers in index form;	158g,			
9	SCE	Cancel to simplify a calculation;				
10	S	Use index notation for powers of 10, including negative powers;	158c			
11	SC	Use the laws of indices to multiply and divide numbers written in index notation;	158a 158b			
12	SC	Use the square, cube and power keys on a calculator;	160b 160e			
13	SC	Use brackets and the hierarchy of operations with powers inside the brackets, or raising brackets to powers;	115c			
14	SC	Use calculators for all calculations: positive and negative numbers, brackets, powers and roots, four operations.	160			
15	SC	List all three-digit numbers that can be made from three given integers;	381b			
16	CE	Estimate powers and roots of any given positive number, by considering the values it must lie between, e.g. the square root of 42 must be between 6 and 7;	157e			
17	CE	Find the value of calculations using indices including positive, fractional and negative indices;	194k			
18	CE	Recall that $n^0 = 1$ and $n^{-1} = \frac{1}{n}$ for positive integers n as well as, $n^{\frac{1}{2}} = \sqrt{n}$ and $n^{\frac{1}{3}} = \sqrt[3]{n}$ for any positive number n ;	158f 165			
19	E	Understand that the inverse operation of raising a positive number to a power n is raising the result of this operation to the power $\frac{1}{n}$;	426c			
20	CE	Use index laws to simplify and calculate the value of numerical expressions involving multiplication and division of integer powers, fractional and negative powers, and powers of a power;	158 191 192			
21	E	Solve problems using index laws;	358 395			
22	E	Use brackets and the hierarchy of operations up to and including with powers and roots inside the brackets, or raising brackets to powers or taking roots of brackets;	115c 115f			
23	CE	Use an extended range of calculator functions, including +, −, ×, ÷, x^2 , $\sqrt{x}$, memory, x^y , $x^{\frac{1}{y}}$, brackets;	160			
24	CE	Use calculators for all calculations: positive and negative numbers, brackets, powers and roots, four operations.	160			

Student's comments and questions: