



Cambridge Lower Secondary Programme Mathematics Curriculum Framework: Year 7

Number

Properties

- Np1 Understand decimal notation and place value
Multiply and divide integers and decimals by 10, 100 and 1000
- Np2 Multiply and divide three digit by two digit whole numbers.
Know and use the order of operations, including brackets, with simple calculations.
- Np3 Use fraction notation to describe parts of shapes and to express a smaller whole number as a fraction of a larger one
Simplify fractions by cancellation and identify equivalent fractions
Convert terminating decimals to fractions
Know that a recurring decimal is a fraction
Use division to convert a fraction to a decimal
Add and subtract fractions with common denominators
Calculate fractions of quantities (whole number answers) and multiply a fraction by an integer
Recognise the equivalence of percentages, fractions and decimals
- Np4 Recognise and use multiples, factors, common factors, highest common factor, lowest common multiple, primes and use simple tests of divisibility
Recognise triangular numbers, squares and the corresponding square roots
- Np5 Know and use the symbols =, ≠, <, >
Order fractions, decimals and percentages by magnitude

Problem Solving

- Ns1 Understand, use and calculate simple percentages
Use percentages to compare simple proportions
Express one quantity as a percentage of another
Calculate percentage increase and decrease
- Ns2 Understand and use negative numbers
Order, add, subtract, multiply and divide positive and negative integers in context
- Ns3 Understand the relationship between ratio and proportion
Use ratio notation
Reduce a ratio to its simplest form and divide a quantity in a given ratio
Solve simple problems involving ratio and proportion in context
- Ns4 Round large positive whole numbers to the nearest 10, 100 or 1000 and decimals to the nearest whole number or 1 decimal place
- Ns5 Use a calculator to
(a) multiply and divide whole numbers (up to 3-digits).
(b) carry out calculations involving brackets, the memory, the square root and sign change keys
Interpret a calculator display in different contexts



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- Ns6 Without using a calculator (a) add and subtract whole numbers and decimals (up to two places)
(b) multiply and divide whole numbers and decimals (up to two places) by single digit whole numbers

Recall number facts, including multiplication facts to 10×10 and derive associated division facts
Use mental methods of calculation with simple decimals, fractions and percentages
Check results mentally by considering the order of magnitude

Data Handling

- Nd1 Collect and organise data
Design a data collection sheet or questionnaire to use in a simple survey
Construct frequency tables for discrete data, grouped where appropriate in equal class intervals
Construct and interpret bar-line graphs, pictograms and frequency diagrams for grouped discrete data
Draw conclusions based on the shape of graphs
Compare two simple distributions using the range and one of the mode, median or mean
- Nd2 Find the mode (or modal class for grouped data), median and range
Calculate the mean, including from a simple frequency table
- Nd3 Understand and use the probability scale from 0 to 1
Find probabilities based on equally likely outcomes in simple contexts
Use experimental data to estimate probabilities
Compare experimental and theoretical probabilities in simple contexts

Algebra

Manipulation

- An 1 Use letters to represent unknowns or variables
Simplify linear algebraic expressions by collecting like terms
Evaluate simple formulae
Know the meaning of the words term, expression and equation
- An2 Construct and solve simple linear equations with integer coefficients

Graphs

- Ag1 Plot graphs of simple linear functions
Generate co-ordinate pairs that satisfy a simple linear equation
Recognise the equation of lines parallel to the x -axis or the y -axis
- Ag2 Draw and interpret the graphs of simple linear functions arising from practical situations
- Ag3 Understand and use 2-D Cartesian co-ordinates in all four quadrants
- Ag5 Generate and describe simple integer sequences
Find simple term-to-term rules



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Space

Measure

- Sm1 Convert from one metric unit to another
Read and interpret scales on measuring instruments
- Sm2 Understand and use the 12-hour and 24-hour clock systems
Use and interpret timetables
- Sm5 Know and use the formula for the area of a rectangle
Calculate the perimeter and area of compound shapes made from rectangles and triangles
Deduce and use the formula for the area of a triangle, parallelogram and trapezium

Geometry

- Sg3 Use a ruler and protractor to:
(a) measure and draw lines to the nearest millimetre and angles to the nearest degree,
(b) construct a triangle given two sides and the included angle or two angles and the included side
- Sg4 Understand and use the language and notation associated with:
(a) reflections, translations and rotations
(b) enlargement
Recognise the transformations:- reflection in a given line, translation, rotation about a given point
Enlarge 2-D shapes, given a centre of enlargement and a positive whole number scale factor