



MATHEMATICS - YEAR 8

Ratio and scale:

Understand and use ratio notation, including simplifying ratios and unitary ratios. Share amounts into a given ratio. Find the proportional link in given scenarios, including between circumference and diameter of a circle.

Multiplicative change:

Solve problems involving direct proportion. Use proportion graphs to solve problems, including conversion graphs for currency and unit conversions. Use scale factors and interpret scale diagrams and maps.

Multiplying and dividing fractions:

Multiply combinations of integers, fractions and mixed numbers. Divide combinations of integers, fractions and mixed numbers. Understand and use the reciprocal.

Brackets, equations and inequalities:

Form expressions, equations and inequalities. Expand brackets and combinations of brackets, simplifying the outcome where possible. Solve equations and inequalities. Factorise expressions into a single bracket.

Sequences:

Generate sequences given in words and with an algebraic rule. Find the n th term rule for a linear sequence.

Indices:

Addition and subtraction of expressions involving indices. Simplify expressions involving multiplication and division with indices.

Angles in parallel lines and polygons:

Solve problems involving angles in parallel lines. Investigate properties of quadrilaterals. Find interior and exterior angles of polygons.

Area of trapezia and circles:

Calculate the area of a trapezium. Calculate the area of circles and part circles. Find the area and perimeter of compound shapes.

Line symmetry and reflections:

Recognise line symmetry. Perform reflection of shapes in horizontal, vertical and diagonal lines.

Working in the cartesian plane:

Work with coordinates in all four quadrants. Plot graphs that are parallel to the axis. Recognise and plot graphs that have positive and negative gradients. Understand the general form of a line, $y=mx+c$. Explore the link between linear sequences and straight line graphs.

Representing data:

Draw and interpret scatter graphs, including identifying correlation. Understand and use grouped frequency tables. Identify different types of data. Use two-way tables to represent data.

Tables and probability:

Construct sample space diagrams for multiple events. Find probabilities from sample space diagrams, venn diagrams and two-way tables.

Fractions and percentages:

Convert between fractions, decimals and percentages. Find fractions, decimals and percentages of amounts using calculator and non-calculator methods. Increase and decrease amounts by given percentages. Express numbers as fractions or percentages of each other. Find the percentage change between two quantities.

Standard index form:

Investigate positive and negative powers of 10. Order numbers that are in standard form. Perform calculations with numbers in standard form.

Number sense:

Round numbers and estimate calculations. Converting metric units. Solve problems involving money, time and the calendar.

The data handling cycle:

Set up a statistical enquiry. Design and criticise questionnaires. Identify the most appropriate chart to display data. Draw and interpret multiple bar charts and line graphs. Compare distributions using charts. Find and interpret the range. Identify misleading graphs.

Measures of location:

Understand the mean, median and mode. Identify outliers. Choose the most appropriate average. Compare distributions using averages and the range.

