

Applications of Maths

National 4/5 - Unit 2 - Geometry and Measures

Bold print indicates National 5 Requirements

Unit 1.1 - 'Speed, Distance, Time' and 'Time Management' TEST 1

I can use a formula relating time and another quantity eg: cooking time and weight of meat.

I can change between minutes and hours & minutes. eg: 130 mins = 2hr 10mins

I can work out how long it is between times eg: timetables (Added Value Unit)

I can add and subtract amounts of time in context. Eg cooking times, travelling times (AVU)

I can add and subtract times in the context of time differences around the world

I can use speed, distance time formulae

I can change between decimal hours and hrs & minutes. eg: 1.68hrs = 1hr 41 mins

I can change between minutes and seconds.

Unit 1.2 - Scale Factor, Scale Drawing & Navigation TEST 1

I can use a scale factor which is a non-unitary fraction (eg: SF = 2/3) to determine a related measurement

I can make a scale drawing using a given scale (eg: 1cm to 5km) and bearings.

I can choose an appropriate scale and make a scale drawing involving bearings.

Unit 1.3 - Container Packaging & Precedence Tables TEST 1

I can complete appropriate calculations and explain the best way to store items on shelving. Eg stacking books horizontally or vertically

I can complete calculations, inc. using different units and explain the best way to pack items into a van.

I can complete a precedence table to put activities into a logical order.

Unit 1.4 - Measurement & Tolerance TEST 2

I can work with tolerance notation and decide if an amount is within acceptable limits

I can use tolerance in contexts such as Speed, Distance and Time calculations

Unit 2.1 - Pythagoras' Theorem TEST 2

I can work out the hypotenuse of a right-angled triangle given the 2 shorter sides.

I can work out a shorter side of a right-angled triangle given the other 2 sides.

I can identify the right-angled triangle within a problem solving context and complete Pythagoras' Theorem.

I can use Pythagoras within a 2-stage calculation. (see unit test & exam examples)

Unit 2.3 - Gradients TEST 2

I can work out the gradient of a slope using the formula: $\frac{\text{Vertical height}}{\text{Horizontal distance}}$

I can explain if a gradient meets specific requirements.

I can work out the gradient of the straight line between 2 points on a coordinate grid

I can recognize and complete a question that requires the use of Pythagoras Theorem to work out one of the lengths required for calculating gradient.

I can work with gradient in alternative formats. Eg: ' the gradient of a ramp is 1 in 12.'

Unit 2.2 - Perimeter, Area & Volume TEST 2/3

I can work out perimeter of 2D shapes, including circumference of circles

I can use formulae to work out the area of rectangles, squares, triangles and circles.

I can work out the area of composite shapes by splitting the shape into known shapes.

I can use area & perimeter in context. eg: working out how much paint is required when decorating. (AVU)

I can work out the volume of cubes & cuboids using appropriate units: litres, millilitres, cm^3 , m^3 etc.

I can work out the volume of a prism (including cylinders) using the formula: $v = Ah$

I can work out the volume of cones and spheres given a formula.

I can work out the volume of a composite 3D shape inc. simple fractional parts of solids (hemi-sphere)

Given the volume of a shape I can work backwards to work out the height or radius etc.