MathsBox

What's available for L2 Further Maths.

An overview of the L2 Further Maths topics available in the Mathsbox Question Generator.

$\frac{dy}{dx}$ Differentiation

Fractions

$f(x)$ Functions

Geo

Matrices

Trigonome

Contents.

www.mathsbox.org.uk

Contents.

Getting Started with Mathsbox.

Whether you're looking for Primary, Secondary, or A-Level resources, we've got you covered.

Question Generator

Our popular Question Generator gives you the tools to create unlimited resources with answers tailored to your lesson plans.

Over 2,000 question structures from the UK Curriculum to select from. Simply choose your resource type, select your topics, and generate unlimited questions and resources(with answers)

This document contains the full list of topics and question structures for L2 Further Maths - available to select from in our Question Generator.

1

Select
Resource Type

Choose your resource format to print or project ready to slot into your lesson plans

2

Select
Topics

Select your question structures from over 2000 topics covering the curriculums from KS2 to KS5

3

Create
Resources!

Generate endless unique resources and answers at the click of a button!

Ready-Made Resources

Over 8,000 ready-made resources available, you'll find a variety of formats including worksheets, questions to project, treasure hunts, bingo games, and much more to support your lessons.

L2 Further Maths.

Number

Fractions

- Mixed numbers to improper fractions
- Improper fractions to mixed numbers
- Multiply a pair of proper fractions
- Divide any pair of proper fractions
- Adding mixed numbers
- Subtract mixed numbers
- Non-unit fraction of a quantity
- Recurring decimals as fractions

Ratios

- Simplifying ratios
- Simplfying ratios (mixed units)
- Expressing in the form 1:n or n:1
- Dividing in a given ratio
- Dividing in a given ratio - difference known
- Dividing in a given ratio - one share (3)
- Find the larger share - smaller known
- Find the larger share - difference known
- Find the smaller share -larger known
- Find the smaller share - difference known
- a:b and b:c - find a:c
- a:b and b:c - express as a fraction
- a:b and b:c -calculate a quantity
- na =mb and b:c - find a:b:c
- na =mc and b:c - find a:c

Rationalising the denominator

- Rationalising the denominator: $a / \sqrt{b}$
- Rationalising the denominator: $a / (c \pm \sqrt{b})$
- Rationalising the denominator: $(a \pm \sqrt{b}) / (c \pm \sqrt{b})$
- Rationalising the denominator mixture:

Percentages

- Calculating a percentage of a quantity
- Increasing by a given percentage
- Decreasing by a given percentage
- Expressing as a percentage
- Finding the original < 100%
- Finding the original > 100%

Product Rule for counting

- Dials
- Dials - multiples of 5 or 10
- Dials - Odd and Even

Manipulating Surds

- Simplifying: $\sqrt{a}$
- Simplifying: $\sqrt{a} \pm b + \sqrt{a} \pm c$
- Simplifying: $n\sqrt{a} \pm b + m\sqrt{a} \pm c$
- Simplifying: $n\sqrt{a} + \sqrt{b}$
- Simplifying: $n\sqrt{a} \times m\sqrt{a}$
- Simplifying: $\sqrt{a} \times \sqrt{b}$
- Simplifying: $m\sqrt{a} \times n\sqrt{b}$
- Simplifying Mixture
- Expanding brackets: $\sqrt{a}(a\sqrt{b} \pm c)$
- Expanding brackets: $\sqrt{a}(b \pm \sqrt{a})$
- Expanding brackets: $a\sqrt{b}(c\sqrt{d} \pm e)$
- Expanding brackets: $(\sqrt{a} \pm b)(\sqrt{a} \pm c)$
- Expanding brackets: $(a\sqrt{b} \pm c)(d\sqrt{b} \pm e)$
- Expanding Mixture

Algebra (1)

Basic processes of algebra

- Collecting like terms - Two variables
- Collecting like powers of a variable
- Multiplying terms: $a \times x \times b \times x$
- Multiplying terms: $ax \times bx$
- Dividing terms
- Dividing terms: $ax \div b$

Evaluating functions

- Evaluating functions: $ax^2 - b$
- Evaluating functions: $b - ax^2$
- Evaluating functions: $(ax)^2 + b$
- Evaluating functions: ax^2 / b
- Evaluating functions: $ax^2 / b + c$
- Evaluating functions: $ax^2 / b - c$
- Evaluating functions: $\sqrt{(ax + b)}$

L2 Further Maths.

Algebra (1)

Evaluating functions

- Evaluating functions: $\sqrt{(b - ax)}$
- Evaluating functions: $\sqrt{((x + a) / b)}$
- Evaluating functions: $x^2 + x$
- Evaluating functions: $ax^2 \pm x$
- Evaluating functions: $x^2 \pm ax$
- Evaluating functions: $ax^2 \pm bx$
- Evaluating functions: $ax - bx^2 \pm c$
- Evaluating functions: $ax^3 \pm bx^2$
- Evaluating functions: $ax^3 \pm bx^2 \pm cx \pm d$

Composite functions

- $fg(x): f(x) = ax \pm b, g(x) = cx \pm d$
- $gf(x): f(x) = ax \pm b, g(x) = cx \pm d$
- $fg(x): f(x) = x^2, g(x) = ax \pm b$
- $g(x): f(x) = x^2, g(x) = ax \pm b$
- $fg(x): f(x) = ax^2, g(x) = bx \pm c$
- $gf(x): f(x) = ax^2, g(x) = bx \pm c$
- $fg(x): f(x) = x^2 \pm a, g(x) = x \pm b$
- $gf(x): f(x) = x^2 \pm a, g(x) = x \pm b$
- $fg(x): f(x) = a \pm bx, g(x) = cx \pm d$
- $gf(x): f(x) = a \pm bx, g(x) = cx \pm d$

Inverse functions

- Inverse functions: $x - a$
- Inverse functions: $x + a$
- Inverse functions: $a - x$
- Inverse functions: ax
- Inverse functions: x / a
- Inverse functions: a / x
- Inverse functions: $ax + b$
- Inverse functions: $b - ax$
- Inverse functions: $ax - b$
- Inverse functions: $(x + b) / a$
- Inverse functions: $(x - b) / a$
- Inverse functions: $(b - x) / a$
- Inverse functions: $a / (x + b)$
- Inverse functions: $a / (x - b)$
- Inverse functions: $x / a + b$
- Inverse functions: $x / a - b$
- Inverse functions: $\sqrt{x}$
- Inverse functions: $a\sqrt{x}$
- Inverse functions: $\sqrt{(x + a)}$
- Inverse functions: $\sqrt{(x - a)}$
- Inverse functions: $\sqrt{(a - x)}$
- Inverse functions: $\sqrt{x} / a$

Domain and Range of a Function

- Find the range of $y = ax + b$
- Find the range of $y = b - ax$
- Find the range of $y = ax + b$
- Find the range of $y = b - ax$
- Find the range of $y = x^2$
- Find the range of $y = x^2 \pm c$
- Find the range of $y = a - x^2$
- Find the range of $y = ax^2 \pm c$
- Find the range of $y = b - ax^2$
- Find the range of $y = ax^2 \pm bx$
- Find the range of $y = bx - ax^2$

Inverse functions

- Inverse functions: $a / \sqrt{x}$
- Inverse functions: $\sqrt{(a / x)}$
- Inverse functions: $\sqrt{(x / a)}$
- Inverse functions: $\sqrt{x} + a$
- Inverse functions: $\sqrt{x} - a$
- Inverse functions: $a - \sqrt{x}$
- Inverse functions: $a\sqrt{(x + b)}$
- Inverse functions: $a\sqrt{(x - b)}$
- Inverse functions: $a + \sqrt{(x - b)}$
- Inverse functions: $a - \sqrt{(x - b)}$
- Inverse functions: $a - \sqrt{(x + b)}$
- Inverse functions: $\sqrt{(x + b)} / a$
- Inverse functions: $\sqrt{((x - b) / a)}$
- Inverse functions: $\sqrt{((x + b) / a)}$
- Inverse functions: $\sqrt{x} / a + b$
- Inverse functions: $\sqrt{x} / a - b$
- Inverse functions: $b - \sqrt{x} / a$
- Inverse functions: $\sqrt{(ax + b)}$
- Inverse functions: $\sqrt{(ax - b)}$
- Inverse functions: $\sqrt{(b - ax)}$
- Inverse functions: $\sqrt{x} / a + b$

Expanding Brackets and Like Terms

- Expanding: $a(bx \pm c) + d(ex \pm f)$
- Expanding: $a(bx \pm c) - d(ex \pm f)$

03

L2 Further Maths.

Algebra (1)

Expanding (a + bx)^n

- Expanding: (x ± a)(x ± b)
- Expanding: (ax ± b)(cx ± d)
- Expanding: (1 + x)^n
- Expanding: (1 - x)^n
- Expanding: (a + x)^n
- Expanding: (a - x)^n
- Expanding: (x + a)^n
- Expanding: (x - a)^n
- Expanding: (1 + ax)^n
- Expanding: (1 - ax)^n
- Expanding: (a + bx)^n
- Expanding: (a - bx)^n
- Expanding: (ax + b)^n
- Expanding: (ax - b)^n

Factorising

- Factorising: $x^2 \pm bx \pm c$
- Factorising: $ax^2 \pm bx \pm c$

Formulae and Expressions

- Rearrange complex: $y = \sqrt{(x + a)}$
- Rearrange complex: $y = \sqrt{(x - a)}$
- Rearrange complex: $y = \sqrt{(a - x)}$
- Rearrange complex: $y = \sqrt{x} / a$
- Rearrange complex: $y = a / \sqrt{x}$
- Rearrange complex: $y = \sqrt{(a / x)}$
- Rearrange complex: $y = \sqrt{(x / a)}$
- Rearrange complex: $y = \sqrt{x} + a$
- Rearrange complex: $y = \sqrt{x} - a$
- Rearrange complex: $y = -\sqrt{x}$
- Subject appears twice: ax = bx + c
- Subject appears twice: ax = c - bx
- Subject appears twice: ax + b = cx + d
- Subject appears twice: ax - b = cx + d
- Subject appears twice: ax - b = d - cx
- Subject appears twice: ax + b = d - cx
- Subject appears twice: (x + a)/(x + b) = c

Specific Terms and Finding b

- Specific terms: (1 + bx)^n
- Specific terms: (1 - bx)^n
- Finding b: (1 + bx)^n
- Finding b: (1 - bx)^n
- Specific terms: (a + bx)^n
- Specific terms: (a - bx)^n
- Finding b: (a + bx)^n
- Finding b: (a - bx)^n

Manipulation – Rational Expressions

- Simplify: x/a + x/b
- Simplify: x/a - x/b
- Simplify: (ax)/b + (cx)/d
- Simplify: (ax)/b - (cx)/d
- Simplify: (x + a)/b + (x + c)/d
- Simplify: (x + a)/b - (x + c)/d
- Simplify: (x + a)/b - (x - c)/d
- Simplify: (x - a)/b - (x + c)/d
- Simplify: (x - a)/b - (x - c)/d
- Simplify: (x - a)/b + (x - c)/d
- Simplify: (x + a)/b - (x - c)/d
- Multiply algebraic fractions
- Multiply algebraic fractions
- Divide algebraic fractions
- Divide algebraic fractions

Formulae and Expressions

- Subject appears twice: (x - a)/(x + b) = c
- Subject appears twice: (x + a)/(x - b) = c
- Subject appears twice: ax - b = cd - d
- Subject appears twice: x/(x - b) = c
- Subject appears twice: x/(x + b) = c
- Subject appears twice: (ax + b)/(cx + d) = e
- Subject appears twice: (ax - b)/(cx + d) = e
- Subject appears twice: (ax - b)/(cx - d) = e

Algebra (2)

Factor Theorem

- Verifying a factor
- Factorising a cubic
- Factorising a quartic
- Solving a cubic equation
- Solving a quartic equation
- Polynomial Division

L2 Further Maths.

Algebra (2)

Completing the square

- $x^2 + px + q = (x + a)^2 + b$
- $x^2 - px + q = (x - a)^2 + b$
- $x^2 \pm px \pm q = (x \pm a)^2 + b$
- $q - x^2 \pm p = b - (x \pm a)^2$
- $px^2 - qx + r = a(x \pm a)^2 + b$
- $px^2 - bx + r = a(x \pm q)^2 + b$
- $r - px^2 \pm q = c - a(x \pm b)^2$

Linear Equations

- Solving Equations: $ax \pm b = cx \pm d$
- Solving Equations: $a(bx \pm c) = dx \pm e$
- Solving Equations: $x/a + b = cx + d$
- Solving Equations: $x/a - b = cx + d$
- Solving Equations: $x/a + b = cx - d$
- Solving Equations: $x/a - b = cx - d$
- Solving Equations: $b - x/a = cx + d$
- Solving Equations: $b - x/a = cx + d$
- Solving Equations: $x/a + b = x/c + d$
- Solving Equations: $x/a - b = x/c + d$
- Solving Equations: $x/a + b = x/c - d$
- Solving Equations: $x/a - b = x/c - d$
- Solving Equations: $x/a + b = d - x/c$
- Solving Equations: $x/a - b = d - x/c$
- Solving Equations: $x/a + x/b = c$
- Solving Equations: $x/a - x/b = c$
- Solving Equations: $x/a + x/b = cx + d$
- Solving Equations: $x/a - x/b = cx + d$
- Solving Equations: $x/a + x/b = cx - d$
- Solving Equations: $x/a - x/b = cx - d$
- Solving Equations: $x/a + x/b = e - dx$
- Solving Equations: $x/a - x/b = e - dx$

Equations with 3 unknowns

- Elminating z
- Eliminating y
- Eliminating x
- Solving Mixture

Sketching graphs

- Sketching $y = x^2 \pm bx \pm c$
- Sketching $y = -x^2 \pm bx \pm c$
- Sketching $y = ax^3 \pm bx^2 \pm cx \pm d$
- Sketching $y = -ax^3 \pm bx^2 \pm cx \pm d$
- Sketching graphs of exponential functions
- 3 function graphs

Quadratic equations

- Factorise and solve mixture $x^2 \pm bx \pm c = 0$
- Factorise and solve mixture $ax^2 \pm bx \pm c = 0$
- Difference of 2 squares: $x^2 - b^2 = 0$
- Difference of 2 squares: $a^2 x^2 - b^2 = 0$
- Quadratic formula $x \pm bx \pm c = 0$
- Quadratic formula $ax \pm bx \pm c = 0$
- Quadratic formula - rearrange and solve
- Equations: $a/x + b/(x+c) = d$
- Equations: $a/x - b/(x+c) = d$
- Equations: $a/x + b/(x-c) = d$
- Equations: $a/(x-c) - b/x = d$
- Equations: $a/(x+b) + c/(x+d) = e$
- Equations: $a/(x+b) - c/(x+d) = e$
- Equations: $a/(x-b) - c/(x+d) = e$
- Equations: $a/(x-b) - c/(x-d) = e$

Simultaneous Equations

- $ax + by = r$ and $cx + dy = s$
- $ax - by = r$ and $cx - dy = s$
- $ax - by = r$ and $cx + dy = s$
- $ax + by = r$ and $cx - dy = s$
- $y = x^2 + bx + c$ and $y = dx + e$
- $ax^2 \pm by^2 = c$ and $x + y = d$
- $x^2 + y^2 \pm xy = c$ and $x + y = d$
- $x^2 + y^2 \pm axy = c$ and $x + y = d$
- $x^2 + y^2 \pm ax = c$ and $x + y = d$
- $x^2 + y^2 \pm ay = c$ and $x + y = d$
- $x^2 \pm ax\,y^2 \pm by = c$ and $x + y = d$
- $x^2 + y^2 = r^2$ and $y = x \pm c$
- $x^2 + y^2 = r^2$ and $y = ax \pm c$

L2 Further Maths.

Algebra (2)

Linear and quadratic Inequalitites

- Solving: $ax + b < cx + d$
- Solving: $ax - b < cx + d$
- Solving: $ax + b < cx - d$
- Solving: $ax - b < cx - d$
- Solving: $ax + b < d - cx$
- Solving: $ax - b < d - cx$
- Solving: $a < bx + c < d$
- Solving: $a < bx - c < d$
- Solving: $a < b - cx < d$
- Solving: $x^2 - bx + c \geq 0$
- Solving: $x^2 - bx + c \leq 0$
- Solving: $x^2 - bx - c \geq 0$
- Solving: $x^2 - bx - c \leq 0$
- Solving: $x^2 + bx - c \geq 0$
- Solving: $x^2 + bx - c \leq 0$
- Solving: $x^2 + bx + c \geq 0$
- Solving: $x^2 + bx + c \leq 0$

Using the nth terms

- Generate sequences given an algebraic rule
- Generate an increasing sequence - nth term
- Generate a decreasing sequence - nth term
- Generate a linear sequence - nth term
- Generate a quadratic sequence - nth term

Index Law

- Evaluating - Positive Fractions
- Evaluating - Negative Fractions
- Multiplying $ax^n \times bx^m$
- Dividing $(ax^n y^m) / (bx^p y^q)$
- Brackets $(ax^n)^m$
- Mixed Questions
- Simplifying: $(x^n \times x^m) / x^p$
- Simplifying: $(ax^n \times bx^m) / cx^p$
- Simplifying: $n\, x^{\wedge}(a/b) \div m\, x^{\wedge}(c/b)$
- Simplifying: $(n\, x^{\wedge}(a/b))^2 \div m\, x^{\wedge}(c/b)$
- Simplifying: $x^{\wedge}(a/b) \div x^n$
- Simplifying: $n\, x^{\wedge}(a/b) \div m\, x^c$
- Simplifying: $(ax^n (bx^m + c)) / x^p$
- Simplifying: $((bx^m + c)^2) / x^p$
- Solving: $a\, x^4 + b\, x^2 + c = 0$
- Solving: $a\, x^{\wedge}(2/n) + b\, x^{\wedge}(1/n) = c$
- Solving: $\sqrt{x} + b = cx$
- Solving: $a\, x + c/x = b$

Finding the nth terms

- Find the nth term linear - inc
- Find the nth term linear - dec
- Find the nth term linear - mixture
- Find the nth term quadratic
- Find the 10th term - quadratic
- Find the nth term mixture - lin/quad
- Fractions sequences - nth term

Coordinate Geometry

Definition of the gradient

- Determine which is the steeper line
- Identify the gradient (diagram)
- Find the gradient (2 points)

Pythagoras Theorem

- Length of a line segment (1 d.p.)
- Length of a line segment (exact)
- Finding the midpoint

Parallel and Perpendicular lines

- Perpendicular gradient (2 points)
- Equation of a line - through (0,a)
- Equation of a line - through (0,a) (rearranging)
- Equation of a line - through (a,b)
- Equation of a line - through (a,b)(rearranging)

Ratios and straight lines

- Line ABC -finding coordinates - B
- Line ABC -finding coordinates - C
- Line ABC -finding coordinates - A

L2 Further Maths.

Coordinate Geometry

Equation of a straight line

- Equation of a line - 2 function machines
- Equation of a line - through (a,b) and (0,c)
- Equation of a line - through (a,b) and (c,d)
- Equation of a line - gradient and y-intercept
- Identify the gradient of $y = mx \pm c$
- Identify the gradient after rearranging
- 3.5 Equation of a straight line
- Diagram identify $y = mx \pm c$
- Diagram identify $y = -mx \pm c$

Circles with centre (0,0)

- Finding the equation of a circle

Equation of a tangent on a circle

- Equation of tangent to a circle

Circles with centre (a,b)

- Finding the equation of a circle
- Finding the equation of a circle - diameter
- Identifying the radius and centre
- Finding the centre and radius
- Finding the centre of a circle
- Finding the diameter of a circle

Calculus

Gradient function

- Finding the gradient function ax^n
- Finding the gradient function: $ax^{(-n)}$
- Finding the rate of change ax^n
- Finding the rate of change: $ax^{(-n)}$

Calculate the gradient

- Find the gradient: $y = ax^2 \pm c$
- Find the gradient: $y = ax^2 \pm bx$
- Find the gradient: $y = ax^2 \pm bx \pm c$
- Find the gradient: $y = ax^3 \pm c$
- Find the gradient: $y = ax^3 \pm bx$
- Find the gradient: $y = ax^3 \pm bx \pm c$
- Find the gradient: $y = ax^3 \pm bx^2$
- Find the gradient: $y = ax^3 \pm bx^2 \pm c$
- Find the gradient: $y = ax^3 \pm bx^2 \pm cx$
- Find the gradient: $y = ax^3 \pm bx^2 \pm cx \pm d$

Equations of tangents

- Equation of the tangent: $y = ax^2 \pm c$
- Equation of the tangent: $y = ax^2 \pm bx$
- Equation of the tangent: $y = ax^2 \pm bx \pm c$
- Equation of the tangent: $y = ax^3 \pm c$
- Equation of the tangent: $y = ax^3 \pm bx$
- Equation of the tangent: $y = ax^3 \pm bx \pm c$
- Equation of the tangent: $y = ax^3 \pm bx^2$

Differentiation

- Differentiation: $y = mx \pm c$
- Differentiation: $y = mx^2 \pm c$
- Differentiation: $y = ax^2 \pm bx$
- Differentiation: $y = ax^2 \pm bx \pm c$
- Differentiation: $y = ax^3 \pm c$
- Differentiation: $y = ax^3 \pm bx$
- Differentiation: $y = ax^3 \pm bx \pm c$
- Differentiation: $y = ax^3 \pm bx^2$
- Differentiation: $y = ax^3 \pm bx^2 \pm d$
- Differentiation: $y = ax^3 \pm bx^2 \pm cx$
- Differentiation: $y = ax^3 \pm bx^2 \pm cx \pm d$
- Differentiation: $y = ax^n \pm bx^m$
- Differentiation: $y = (x \pm a)(x \pm b)$
- Differentiation: $y = (ax \pm c)(bx \pm d)$
- Differentiation: $y = ax^3 + bx^2 + cx + d$
- Differentiation: $y = ax^4 + bx^3 + cx^2 + dx + e$
- Differentiation: $y = ax(x + b)^2$
- Differentiation: $y = ax^2(x + b)^2$
- Differentiation: $y = (x + a)^2(x + b)^2$
- Differentiation: $y = a(x + a)(x^2 + bx + c)$
- Differentiation: $y = ax(x + a)(x^2 + bx + c)$

Equations of tangents

- Equation of the tangent: $y = ax^3 \pm bx^2 \pm c$
- Equation of the tangent: $y = ax^3 \pm bx^2 \pm cx$
- Equation of the tangent: $y = ax^3 \pm bx^2 \pm cx \pm d$

L2 Further Maths.

Calculus

Equations of normals

- Equation of the normal: $y = ax^2 \pm c$
- Equation of the normal: $y = ax^2 \pm bx$
- Equation of the normal: $y = ax^2 \pm bx \pm c$
- Equation of the normal: $y = ax^3 \pm c$
- Equation of the normal: $y = ax^3 \pm bx$
- Equation of the normal: $y = ax^3 \pm bx \pm c$
- Equation of the normal: $y = ax^3 \pm bx^2$
- Equation of the normal: $y = ax^3 \pm bx^2 \pm c$
- Equation of the normal: $y = ax^3 \pm bx^2 \pm cx$
- Equation of the normal: $y = ax^3 \pm bx^2 \pm cx \pm d$

Understand and use d^2/dx^2

- $y = ax^3 + bx^2 + cx + d$
- $y = ax^4 + bx^3 + cx^2 + dx + e$
- $y = ax(x + b)^2$
- $y = ax^2(x + b)^2$
- $y = (x + a)^2(x + b)^2$
- $y = a(x + a)(x^2 + bx + c)$
- $y = ax(x + a)(x^2 + bx + c)$

Increasing and decreasing functions

- Increasing functions: $y = ax^2 + bx$
- Decreasing functions: $y = ax^2 + bx$
- Increasing functions: $y = ax^2 + bx + c$
- Decreasing functions: $y = ax^2 + bx + c$
- Increasing functions: $y = ax^3 + bx^2$
- Decreasing functions: $y = ax^3 + bx^2$
- Increasing functions: $y = ax^3 + bx^2 + c$
- Decreasing functions: $y = ax^3 + bx^2 + c$
- Increasing functions: $y = ax^3 + bx^2 + cx$
- Decreasing functions: $y = ax^3 + bx^2 + cx$
- Increasing functions: $y = ax^3 + bx^2 + cx + d$
- Decreasing functions: $y = ax^3 + bx^2 + cx + d$

Sketching Graphs

- Find the stationary points: $y = x^3 + bx^2 + c + d$
- Stationary points and sketch: $y = x^3 + bx^2 + c + d$

Matrix Transformations

Multiplication of Matrices

- Multiplication by a scalar
- Multiplication: $2 \times 2 \times 2 \times 1$
- Multiplication: missing values
- Multiplication: missing values
- Multiplication: missing values
- Multiplication: $2 \times 2 \times 2 \times 2$
- Multiplication: missing values
- Multiplication: missing values
- Multiplication: missing values

Image of a point

- Image of a point
- Missing values

Transformations of the unit square

- Stating the matrix
- Describing the transformation

Combinations of transformations

- Finding the combined matrix
- Finding the coordinates of the image

Geometry

Basic Knowledge

- Angles on a straight line
- Angles at a point
- Vertically Opposite Angles
- Angles in a triangle
- Angles in an isosceles triangle
- Angles in a right angled triangle
- Calculate missing angles triangles
- Corresponding angles
- Allied/co-interior angles
- Alternate angles

08

L2 Further Maths.

Geometry

Basic Knowledge

- Basic Mixture
- Parallel lines
- Calculate angles in a quadrilateral
- Interior angles - polygons
- Exterior angles - polygons

Pythagoras

- Pythagoras – mixed sides
- Height – equilateral triangle
- Slant height – isosceles triangle
- Height – isosceles triangle
- Perimeter – isosceles triangle
- Area – isosceles triangle
- Length of a diagonal
- Distance between two points

Graphs of y = sin x

- Using the sine graph
- Using the cosine graph
- Sine and cosine graph

Solve equations in given intervals

- Solve $a\cos^2\theta \pm b\sin\theta \pm c = 0$ $(0° \leq \theta \leq 360°)$
- Solve $a\sin^2\theta \pm b\cos\theta \pm c = 0$ $(0° \leq \theta \leq 360°)$
- Solve $a\cos^2\theta = b\sin\theta \pm c$ $(0° \leq \theta \leq 360°)$
- Solve $a\cos^2\theta = b\sin\theta \pm c$ $(0° \leq \theta \leq 360°)$
- Solve $a\sin^2\theta \pm b\sin\theta \pm c = d\cos^2\theta$ $(0° \leq \theta \leq 360°)$
- Solve $a\cos^2\theta \pm b\cos\theta \pm c = d\sin^2\theta$ $(0° \leq \theta \leq 360°)$
- Solve $a\cos^2\theta - b\sin\theta - c = 0$ $(0° \leq \theta \leq 180°)$
- Solve $a\sin^2\theta - b\cos\theta - c = 0$ $(0° \leq \theta \leq 180°)$
- Solve $a\cos^2\theta = \pm b\sin\theta \pm c$ $(0° \leq \theta \leq 180°)$
- Solve $a\cos^2\theta = \pm b\sin\theta \pm c$ $(0° \leq \theta \leq 180°)$
- Solve $a\sin^2\theta \pm b\sin\theta \pm c = d\cos^2\theta$ $(0° \leq \theta \leq 180°)$
- Solve $a\cos^2\theta \pm b\cos\theta \pm c = d\sin^2\theta$ $(0° \leq \theta \leq 180°)$

Trigonometry

- Sine ratio - calculating sides (mix)
- Sine ratio - calculating the angle (mix)
- Cosine ratio - calculating sides (mix)
- Cosine ratio - calculating the angle (mix)
- Tangent ratio - calculating sides (mix)
- Tangent ratio - calculating the angle (mix)
- Ladder problems
- Angle of depression
- Angle of elevation
- Angle in a rectangle

3D Trigonometry and Pythagoras

- Trigonometry in 3D – Cuboid problems
- Trigonometry in 3D – Pyramid problems
- Trigonometry in 3D – Mixed problems

Exact angles

- Exact calculations

Use identities

- $a\cos^2\theta \pm b\sin\theta \pm c$ $(\sin\theta)$
- $a\sin^2\theta \pm b\cos\theta \pm c$ $(\cos\theta)$
- $a\sin^2\theta \pm b\cos^2\theta \pm c$ $(\sin\theta) + d$
- $a\sin^2\theta \pm b\cos^2\theta \pm c$ $(\cos\theta) + d$
- $\cos\theta(a\cos\theta \pm b\tan\theta)$
- $a\tan\theta + b\cos^3\theta$