

Meridian Maths Curriculum Year 10

Foundation Pathway

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Negatives and Algebra Basics

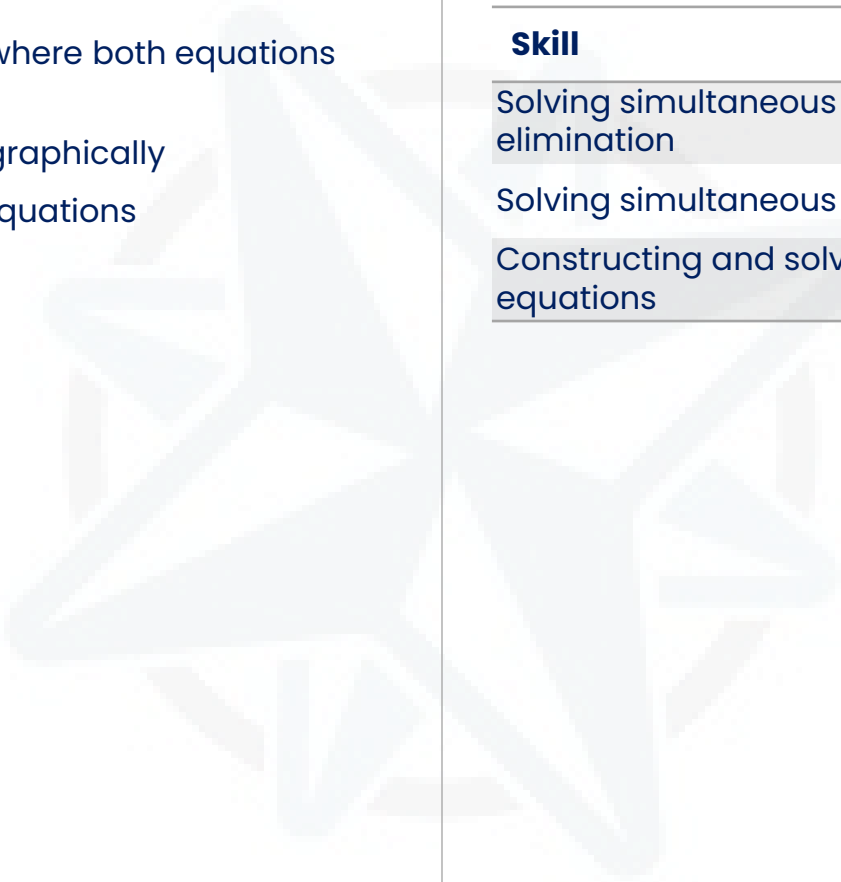
- Addition and subtraction with negative numbers
- Multiplication and division with negative numbers
- Collecting like terms
- Simplifying expressions
- Substitution
- Solving linear equations (unknown on one side)
- Function machines.

Skill	Code
Ordering negative numbers	U947
Adding and subtracting with negative numbers	U742
Multiplying and dividing with negative numbers	U548
Algebraic notation	M813
Algebraic terminology	M830
Function machines with numbers	M175
Function machines with letters	M428

Sparx Maths	
Independent Learning Codes	
Skill	Code
Substituting into expressions with one operation	M417
Substituting into expressions with multiple operations	M327
Substituting into algebraic formulae	M208
Substituting into real-life formulae	M979
Simplifying expressions containing a single variable	M795
Simplifying expressions containing multiple variables	M531
Simplifying expressions containing non-linear terms	M949
Simplifying expressions using index laws	M120
Solving equations with one step	M707
Solving equations with two steps ($2x+4=10$)	M634
Solving equations with brackets	M647
Mixed problems: solving equations	M855
Solving linear equations involving brackets	M902

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- Solve simultaneous equations where one can be subtracted
- Solve simultaneous equations where one equation needs to be transformed
- Solve simultaneous equations where both equations need to be transformed
- Solve simultaneous equations graphically
- Form and solve simultaneous equations



Sparx Maths

Independent Learning Codes

Skill	Code
Solving simultaneous equations using elimination	U760
Solving simultaneous equations graphically	U836
Constructing and solving linear simultaneous equations	U137

Rounding

- Rounding to the nearest 10, 100, 1000
- Rounding to significant figures
- Estimation
- Rounding to a given number of decimal places
- Use of inequality symbols

Sparx Maths

Independent Learning Codes

Skill	Code
Rounding integers	M111
Rounding decimals	M431
Rounding integers using significant figures	M994
Rounding decimals using significant figures	M131
Estimating calculations	M878

- Truncation
- Upper and lower bounds
- Error intervals

Sparx Maths

Independent Learning Codes

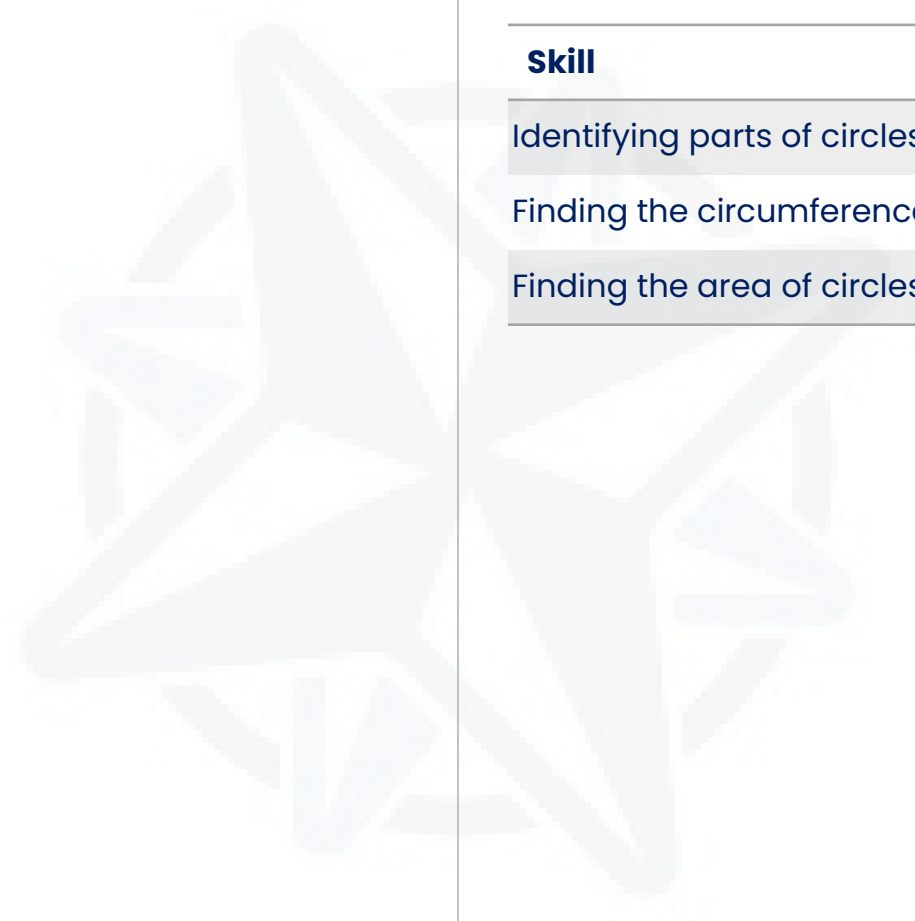
Skill	Code
Truncation	No code.
Finding error intervals	U657

- Perimeter
- Area of rectangles
- Area of triangles
- Area of parallelograms
- Area of trapezium
- Area of compound shapes



Sparx Maths	
Independent Learning Codes	
Skill	Code
Finding areas using grids	M900
Finding perimeters using grids	M920
Finding the area of rectangles	M390
Finding the perimeter of rectangles and simple shapes	M635
Finding the area of compound shapes	M269
Finding the perimeter of compound shapes	M690
Finding the area of triangles	M610
Finding the area of compound shapes containing triangles	M996
Finding the area of parallelograms	M291
Finding the area of trapeziums	M705
Mixed problems: Finding the area of rectangles, triangles, parallelograms and trapeziums	M303

- Parts of a circle
- Circumference of a circle
- Area of a circle



Sparx Maths

Independent Learning Codes

Skill	Code
Identifying parts of circles	U767
Finding the circumference of circles	U604
Finding the area of circles	U950

Arcs and Sectors

- Calculating with multiples of π
- Finding areas of sectors using known factors of 360
- Finding arc lengths and angles using factors of 360

Sparx Maths

Independent Learning Codes

Skill	Code
Finding the arc length of sectors	U221
Finding the area of sectors	U373

Linear Inequalities

- Introduction to inequalities
- Solve linear inequalities in one or two variables
- Solve linear inequalities set on a number line

Sparx Maths

Independent Learning Codes

Skill	Code
Reading and drawing inequalities on number lines	U509
Solving single inequalities	U759
Solving inequalities with the unknown on both sides	U738
Constructing and solving inequalities	U337

Expand and Factorise Single Brackets

- Finding factors and multiples
- Expand single brackets
- Factorise into a single bracket

Sparx Maths

Independent Learning Codes

Skill	Code
Odd and even numbers	M777
Multiples	M752
Finding factors and using divisibility tests	M823
Finding the lowest common multiple (LCM)	M227
Finding the highest common factor (HCF)	M698
Expanding single brackets	U179
Expanding double brackets	U768

Factorising Quadratics and Solving

- Factorise a quadratic expression (without a coefficient of x^2)
- Solve quadratic equations by factorising
- Finding the difference of two squares

Sparx Maths

Independent Learning Codes

Skill	Code
Factorising quadratic expressions	U178
Factorising the difference of two squares	U963
Factorising to solve quadratic equations	U228

- Volume of cubes
- Volume of cuboids
- Volume of prisms
- Surface area of cubes and cuboids
- Surface area of prisms

Sparx Maths

Independent Learning Codes

Skill	Code
Finding the volume of cubes and cuboids	M765
Finding the volume of prisms	M722
Finding the volume of cylinders	M697
Finding the surface area from a net	M884
Finding the surface area of cubes and cuboids	M534
Finding the surface area of prisms	M661
Finding the surface area of cylinders	M936

Further Volume and Surface Area

- Similarity with length
- Similarity with area
- Similarity with volume
- Convert freely between related standard units (time, length, area, volume, capacity, mass) in numerical and algebraic contexts
- Applications of density and pressure

Additional Foundation Content (Teacher Judgement)

- Surface area of spheres
- Surface area of pyramids
- Surface area of cones
- Surface area of composite solids
- Volume of spheres
- Volume of pyramids
- Volume of cones
- Volume of composite solids

Skill	Code
Converting units of length, mass and capacity	U388
Converting units of area	U248
Converting units of volume	U468

Sparx Maths

Independent Learning Codes

Skill	Code
Problem solving: Converting units of length, area and volume	U663
Calculating with density	U910
Calculating with pressure	U527
Mixed problems: Calculating density and pressure	U842
Finding the surface area of pyramids	U871
Finding the surface area of cylinders	U464
Finding the surface area of cones	U523
Finding the surface area of spheres	U893
Finding the surface area of composite shapes	U561
Finding the volume of pyramids	U484
Finding the volume of cylinders	U915
Finding the volume of cones	U116
Finding the volume of spheres	U617

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Similarity and Trigonometry

- Understanding trigonometry
- Deciding which trigonometric ratios to use
- Finding missing sides
- Finding missing angles

Sparx Maths

Independent Learning Codes

Skill	Code
Understanding sin, cos and tan	U605
Finding unknown sides in right-angled triangles	U283
Finding unknown angles in right-angled triangles	U545

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Basic Probability

- The probability scale
- Single event probability
- Mutually exclusive and exhaustive events
- Sample space diagrams

Sparx Maths

Independent Learning Codes

Skill	Code
Using probability phrases	U803
Writing probabilities as fractions	U408
Writing probabilities as fractions, decimals and percentages	U510
Probabilities of mutually exclusive events	U683
Expected results from repeated experiments	U166
Sample space diagrams	U104
Systematic listing	U714

- Use Venn diagrams to display information and use this to calculate probabilities.
- Recap set notation and link to the regions of the Venn diagram in simple cases.
- Complete Venn diagrams including using fdp and ratio.

Sparx Maths

Independent Learning Codes

Skill	Code
Venn diagrams	U476
Venn diagrams with set notation	U748
Using set notation	U296

- Plotting coordinates
- Calculating the gradient
- Finding the intercept
- Horizontal and vertical lines
- $y=mx+c$
- Plotting graphs

Sparx Maths

Independent Learning Codes

Skill	Code
Reading and plotting coordinates	U789
Calculating midpoints	U933
Solving shape problems involving coordinates	U889
Plotting straight line graphs	U741
Finding equations of straight line graphs	U315
Interpreting equations of straight line graphs	U669

Linear Graphs 3

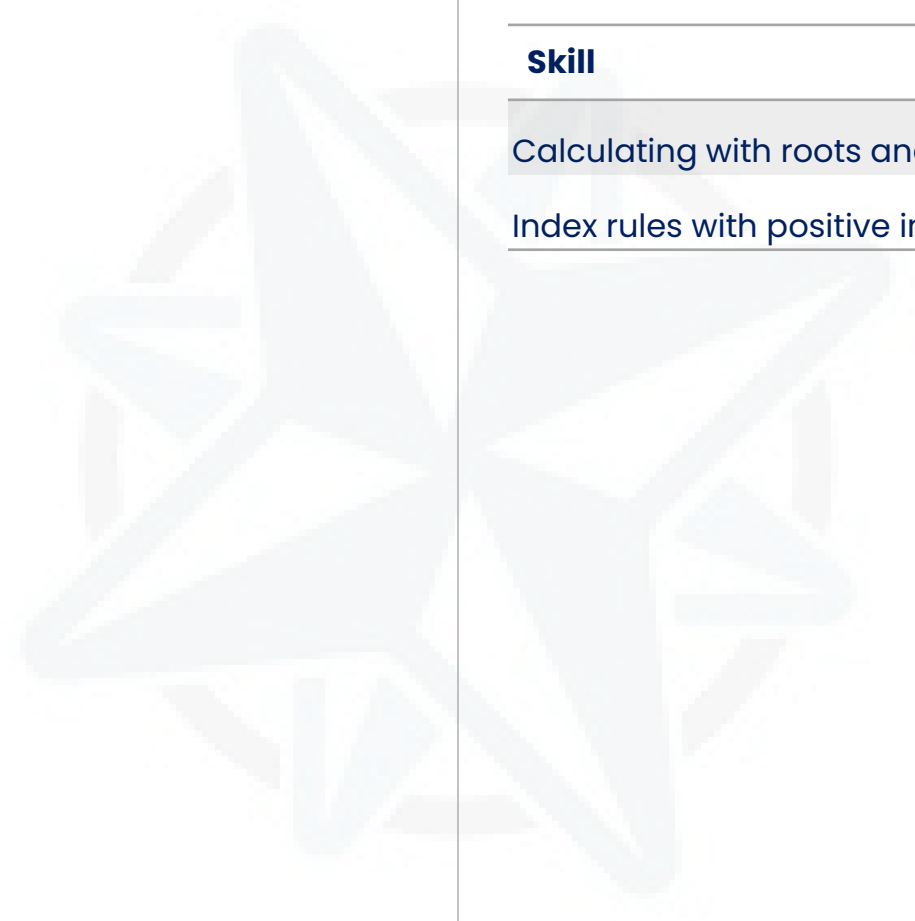
- Find the equation of the line through two given points, or through one point with a given gradient
- Use the form $y = mx + c$ to identify parallel lines
- Real life linear graphs

Sparx Maths

Independent Learning Codes

Skill	Code
Finding the equation of a straight line from its gradient and a point	U477
Finding the equation of a straight line from two points on the line	U848
Equations of parallel lines	U377

- Square and cube numbers
- First three index laws (multiplying, dividing and powers of powers)
- Combining first three index laws



Sparx Maths

Independent Learning Codes

Skill	Code
Calculating with roots and powers	M135
Index rules with positive indices	U235

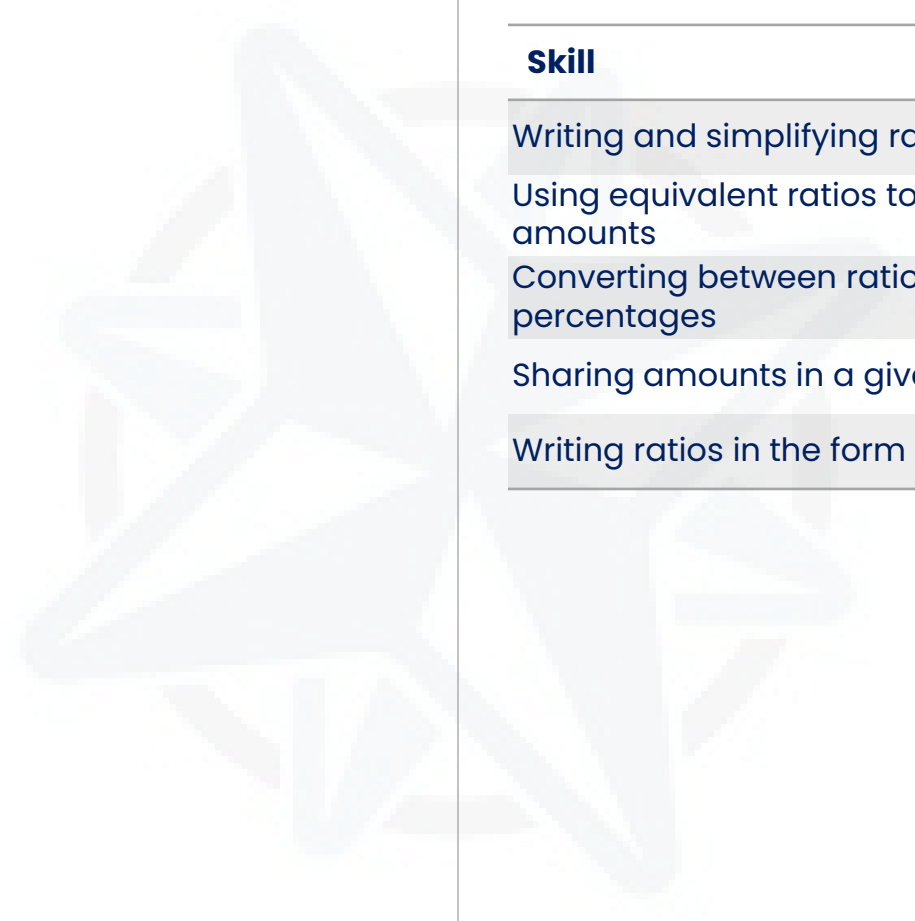
- Negative indices (including reciprocals)

Sparx Maths

Independent Learning Codes

Skill	Code
Index rules with negative indices	U694

- Simplifying ratio
- Unitary ratio
- Sharing in a ratio



Sparx Maths

Independent Learning Codes

Skill	Code
Writing and simplifying ratios	M885
Using equivalent ratios to find unknown amounts	M801
Converting between ratios, fractions and percentages	M267
Sharing amounts in a given ratio	M525
Writing ratios in the form 1:n or n:1	M543

Harder Ratio

- Combining and comparing ratio
- Solving ratio problems
- Ratio problems including converting fractions to ratio

Sparx Maths

Independent Learning Codes

Skill	Code
Converting between ratios, fractions and percentages	U176
Sharing amounts in a given ratio	U577
Combining ratios	U921

Proportion

- Recipes
- Best value
- Direct proportion
- Inverse proportion

Sparx Maths

Independent Learning Codes

Skill	Code
Solving direct proportion word problems	U721
Solving inverse proportion word problems	U357
Currency conversion	U610

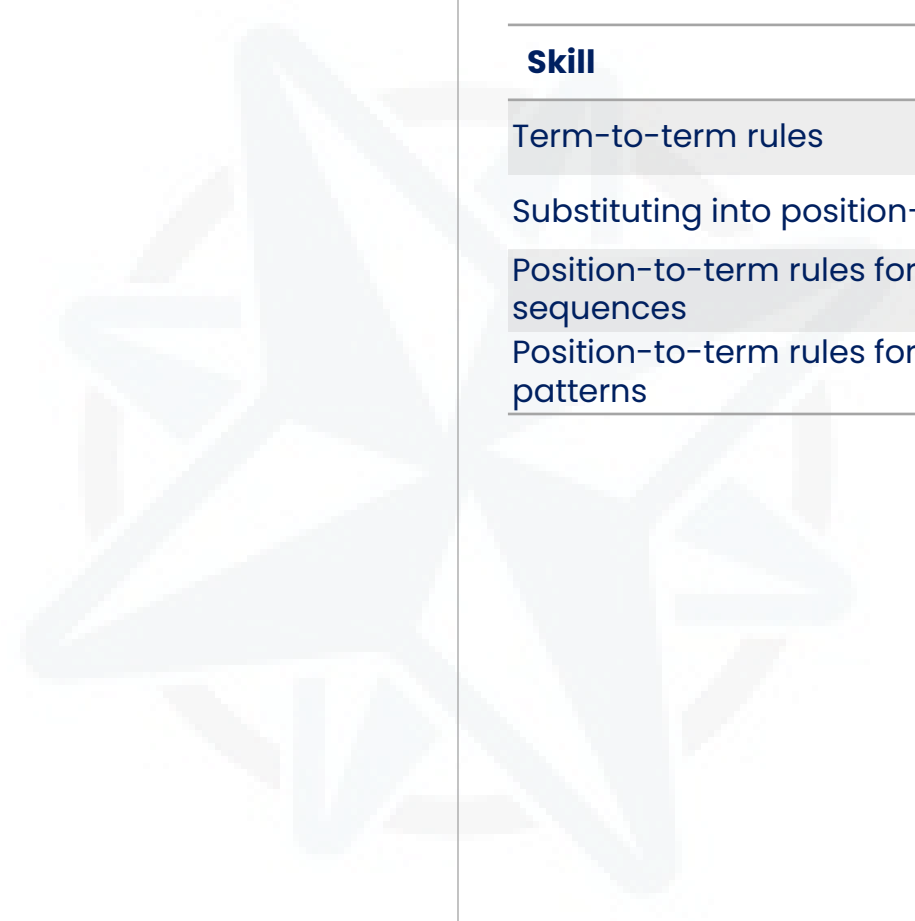
- Use conversion graphs to solve problems

Sparx Maths

Independent Learning Codes

Skill	Code
There isn't a Sparx code suitable	

- Linear nth term
- Generating linear sequences from the nth term
- Plotting linear sequences
- Is this number in the sequence?



Sparx Maths

Independent Learning Codes

Skill	Code
Term-to-term rules	U213
Substituting into position-to-term rules	U530
Position-to-term rules for arithmetic sequences	U498
Position-to-term rules for sequences of patterns	U978

Quadratic Sequences

- Continue quadratic sequences
- Spot geometric sequences (e.g. is this sequence linear, Fibonacci etc)

Sparx Maths

Independent Learning Codes

Skill	Code
Special sequences	U680

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Transformations

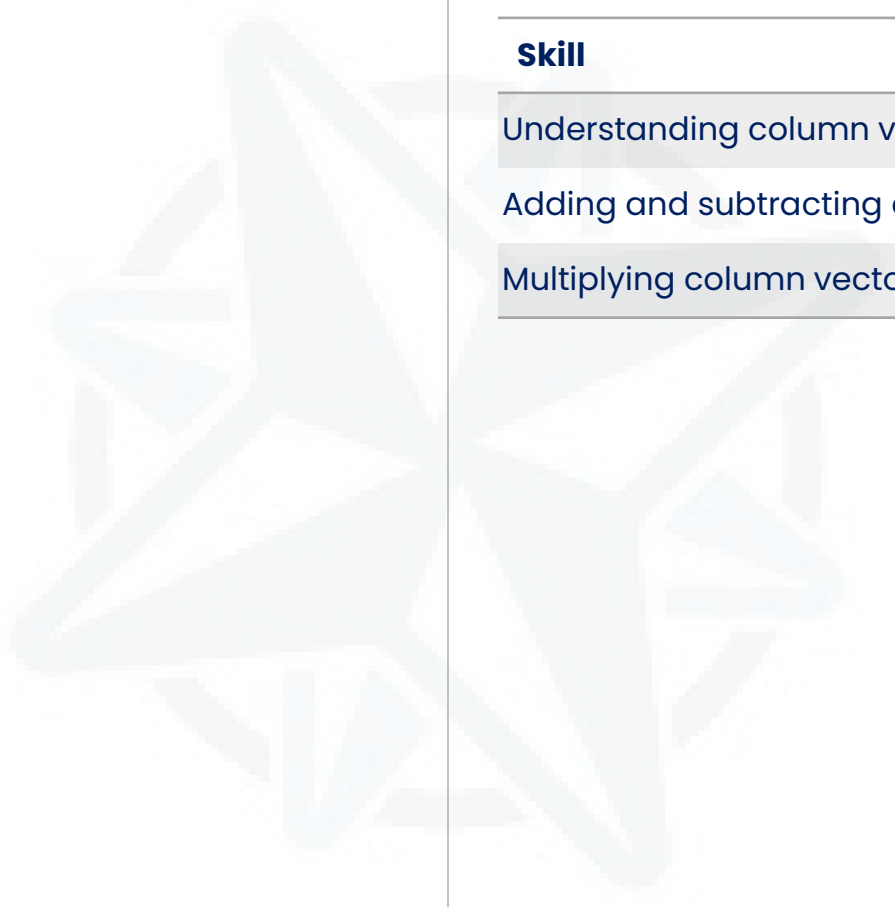
- Congruent transformations
 - Translation
 - Reflection
 - Rotation
- Combined transformations
- Describe translations as 2D vectors

Sparx Maths

Independent Learning Codes

Skill	Code
Translation	U196
Reflection	U799
Rotation	U696
Combining transformations	U766

- Write a vector from a grid
- Vector arithmetic
 - add
 - subtract
 - multiply by a scalar
- Draw column vectors



Sparx Maths

Independent Learning Codes

Skill	Code
Understanding column vectors	U632
Adding and subtracting column vectors	U903
Multiplying column vectors by a scalar	U564