Stage 4

Measurement and Geometry

MA4-12MG Length

calculates the perimeters of plane shapes and the circumferences of circles

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Stage 4

Measurement and Geometry

MA4-13MG Area

uses formulas to calculate the areas of quadrilaterals and circles, and converts between units of area

Stage 4

Measurement and Geometry

MA4-14MG Volume

uses formulas to calculate the volumes of prisms and cylinders, and converts between units of volume

---

Stage 4

Measurement and Geometry

MA4-15MG Time

performs calculations of time that involve mixed units, and interprets time zones

Stage 4

Measurement and Geometry

MA4-16MG Right-Angled Triangles (Pythagoras)

applies Pythagoras' theorem to calculate side lengths in right-angled triangles, and solves related problems

---

Stage 4

Measurement and Geometry

MA4-17MG Properties of Geometrical Figures

classifies, describes and uses the properties of triangles and quadrilaterals, and determines congruent triangles to find unknown side lengths and angles

Stage 4

Measurement and Geometry

MA4-18MG Angle Relationships

identifies and uses angle relationships, including those related to transversals on sets of parallel lines

---

Stage 4

Number and Algebra

MA4-10NA Equations

uses algebraic techniques to solve simple linear and quadratic equations

Stage 4

Number and Algebra

MA4-11NA Linear Relationships

creates and displays number patterns; graphs and analyses linear relationships; and performs

---

Stage 4

Number and Algebra

MA4-4NA Computation with Integers

compares, orders and calculates with integers, applying a range of strategies to aid computation

Stage 4

Number and Algebra

MA4-5NA Fractions, Decimals and Percentages

operates with fractions, decimals and percentages

Stage 4

Number and Algebra

MA4-6NA Financial Mathematics

solves financial problems involving purchasing goods

Stage 4

Number and Algebra

MA4-7NA Ratios and Rates

operates with ratios and rates, and explores their graphical representation

---

Stage 4

Number and Algebra

MA4-8NA Algebraic Techniques

generalises number properties to operate with algebraic expressions

Stage 4

Number and Algebra

MA4-9NA Indices

operates with positive-integer and zero indices of numerical bases

---

Stage 4

Statistics and Probability

MA4-19SP Data Collection and Representation

collects, represents and interprets single sets of data, using appropriate statistical displays

Stage 4

Statistics and Probability

MA4-20SP Single Variable Data Analysis

analyses single sets of data using measures of location, and range

---

Stage 4

Statistics and Probability

MA4-21SP Probability

represents probabilities of simple and compound events

Stage 4

Working Mathematically

MA4-1WM Communicating

communicates and connects mathematical ideas using appropriate terminology, diagrams and symbols

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Stage 4

Working Mathematically

MA4-2WM Problem Solving

applies appropriate mathematical techniques to solve problems

Stage 4

Working Mathematically

MA4-3WM Reasoning

recognises and explains mathematical relationships using reasoning

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Stage 5.1

Measurement and Geometry

MA5.1-10MG Right-Angled Triangles (Trigonometry)

applies trigonometry, given diagrams, to solve problems, including problems involving angles of elevation and depression

Stage 5.1

Measurement and Geometry

MA5.1-11MG Properties of Geometrical Figures

describes and applies the properties of similar figures and scale drawings

---

Stage 5.1

Measurement and Geometry

MA5.1-8MG Area and Surface Area

calculates the areas of composite shapes, and the surface areas of rectangular and triangular prisms

Stage 5.1

Measurement and Geometry

MA5.1-9MG Numbers of Any Magnitude

interprets very small and very large units of measurement, uses scientific notation, and rounds to significant figures

---

Stage 5.1

Number and Algebra

MA5.1-4NA Financial Mathematics

solves financial problems involving earning, spending and investing money

Stage 5.1

Number and Algebra

MA5.1-5NA Indices

operates with algebraic expressions involving positive-integer and zero indices, and establishes the meaning of negative indices for numerical bases

---

Stage 5.1

Number and Algebra

MA5.1-6NA Linear Relationships

determines the midpoint, gradient and length of an interval, and graphs linear relationships

Stage 5.1

Number and Algebra

MA5.1-7NA Non-Linear Relationships

graphs simple non-linear relationships

Stage 5.1

Statistics and Probability

MA5.1-12SP Single Variable Data Analysis

uses statistical displays to compare sets of data, and evaluates statistical claims made in the media

Stage 5.1

Statistics and Probability

MA5.1-13SP Probability

calculates relative frequencies to estimate probabilities of simple and compound events

---

Stage 5.1

Working Mathematically

MA5.1-1WM Communicating

uses appropriate terminology, diagrams and symbols in mathematical contexts

Stage 5.1

Working Mathematically

MA5.1-2WM Problem Solving

selects and uses appropriate strategies to solve problems

Stage 5.1

Working Mathematically

MA5.1-3WM Reasoning

provides reasoning to support conclusions that are appropriate to the context

Stage 5.2

Measurement and Geometry

MA5.2-11MG Area and Surface Area

calculates the surface areas of right prisms, cylinders and related composite solids

---

Stage 5.2

Measurement and Geometry

MA5.2-12MG Volume

applies formulas to calculate the volumes of composite solids composed of right prisms and cylinders

Stage 5.2

Measurement and Geometry

MA5.2-13MG Right-Angled Triangles (Trigonometry)

applies trigonometry to solve problems, including problems involving bearings

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Stage 5.2

Measurement and Geometry

MA5.2-14MG Properties of Geometrical Figures

calculates the angle sum of any polygon and uses minimum conditions to prove triangles are congruent or similar

Stage 5.2

Number and Algebra

MA5.2-10NA Non-Linear Relationships

connects algebraic and graphical representations of simple non-linear relationships

---

Stage 5.2

Number and Algebra

MA5.2-4NA Financial Mathematics

solves financial problems involving compound interest

Stage 5.2

Number and Algebra

MA5.2-5NA Ratios and Rates

recognises direct and indirect proportion, and solves problems involving

---

Stage 5.2

Number and Algebra

MA5.2-6NA Algebraic Techniques

simplifies algebraic fractions, and expands and factorises quadratic expressions

Stage 5.2

Number and Algebra

MA5.2-7NA Indices

applies index laws to operate with algebraic expressions involving integer indices

---

Stage 5.2

Number and Algebra

MA5.2-8NA Equations

solves linear and simple quadratic equations, linear inequalities and linear simultaneous equations, using analytical and graphical techniques

Stage 5.2

Number and Algebra

MA5.2-9NA Linear Relationships

uses the gradient-intercept form to interpret and graph linear relationships

---

Stage 5.2

Statistics and Probability

MA5.2-15SP Single Variable Data Analysis

uses quartiles and box plots to compare sets of data, and evaluates sources of data

Stage 5.2

Statistics and Probability

MA5.2-16SP Bivariate Data Analysis

investigates relationships between two statistical variables, including their relationship over time

---

Stage 5.2

Statistics and Probability

MA5.2-17SP Probability

describes and calculates probabilities in multi-step chance experiments

Stage 5.2

Working Mathematically

MA5.2-1WM Communicating

selects appropriate notations and conventions to communicate mathematical ideas and solutions

---

Stage 5.2

Working Mathematically

MA5.2-2WM Problem Solving

interprets mathematical or real-life situations, systematically applying appropriate strategies to solve problems

Stage 5.2

Working Mathematically

MA5.2-3WM Reasoning

constructs arguments to prove and justify results

Stage 5.3

Measurement and Geometry

MA5.3-13MG Area and Surface Area

applies formulas to find the surface areas of right pyramids, right cones, spheres and related composite solids

Stage 5.3

Measurement and Geometry

MA5.3-14MG Volume

applies formulas to find the volumes of right pyramids, right cones, spheres and related composite solids

---

Stage 5.3

Measurement and Geometry

MA5.3-15MG Right-Angled Triangles (Trigonometry)

applies Pythagoras' theorem, trigonometric relationships, the sine rule, the cosine rule and the area rule to solve problems, including problems involving three dimensions

Stage 5.3

Measurement and Geometry

MA5.3-16MG Properties of Geometrical Figures

proves triangles are similar, and uses formal geometric reasoning to establish properties of triangles and quadrilaterals

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Stage 5.3

Measurement and Geometry

MA5.3-17MG Circle Geometry

applies deductive reasoning to prove circle theorems and to solve related problems

Stage 5.3

Number and Algebra

MA5.3-10NA Polynomials

recognises, describes and sketches polynomials, and applies the factor and remainder theorems to solve problems

---

Stage 5.3

Number and Algebra

MA5.3-11NA Logarithms

uses the definition of a logarithm to establish and apply the laws of logarithms

Stage 5.3

Number and Algebra

MA5.3-12NA Functions and Other Graphs

uses function notation to describe and sketch functions

Stage 5.3

Number and Algebra

MA5.3-4NA Ratios and Rates

draws, interprets and analyses graphs of physical phenomena

Stage 5.3

Number and Algebra

MA5.3-5NA Algebraic Techniques

selects and applies appropriate algebraic techniques to operate with algebraic expressions

---

Stage 5.3

Number and Algebra

MA5.3-6NA Surds and Indices

performs operations with surds and indices

Stage 5.3

Number and Algebra

MA5.3-7NA Equations

solves complex linear, quadratic, simple cubic and simultaneous equations, and rearranges literal equations

---

Stage 5.3

Number and Algebra

MA5.3-8NA Linear Relationships

uses formulas to find midpoint, gradient and distance on the Cartesian plane, and applies standard

Stage 5.3

Number and Algebra

MA5.3-9NA Non-Linear Relationships

sketches and interprets a variety of non-linear relationships

---

Stage 5.3

Statistics and Probability

MA5.3-18SP Single Variable Data Analysis

uses standard deviation to analyse data

Stage 5.3

Statistics and Probability

MA5.3-19SP Bivariate Data Analysis

investigates the relationship between numerical variables using lines of best fit, and explores how data is used to inform decision-making processes

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Stage 5.3

Working Mathematically

MA5.3-1WM Communicating

uses and interprets formal definitions and generalisations when explaining solutions and/or conjectures

Stage 5.3

Working Mathematically

MA5.3-2WM Problem Solving

generalises mathematical ideas and techniques to analyse and solve problems efficiently

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Stage 5.3

Working Mathematically

MA5.3-3WM Reasoning

uses deductive reasoning in presenting arguments and formal proofs