

## **Numbers**

**A.1** Classify numbers

**A.2** Compare and order rational numbers

**A.3** Number lines

**A.4** Convert between decimals and fractions

**A.5** Square roots

**A.6** Cube roots

## **Operations**

**B.1** Add, subtract, multiply and divide integers

**B.2** Evaluate numerical expressions involving integers

**B.3** Evaluate variable expressions involving integers

**B.4** Add and subtract rational numbers

**B.5** Multiply and divide rational numbers

**B.6** Evaluate numerical expressions involving rational numbers

**B.7** Evaluate variable expressions involving rational numbers

## **Ratios, rates and proportions**

**C.1** Identify equivalent ratios

**C.2** Write an equivalent ratio

**C.3** Unit rates

**C.4** Unit prices

**C.5** Solve proportions

**C.6** Solve proportions: word problems

**C.7** Scale drawings: word problems

## **Percents**

**D.1** Convert between percents, fractions and decimals

**D.2** Solve percent equations

**D.3** Percent word problems

**D.4** Percent of change

**D.5** Percent of change: word problems

**D.6** Percent of a number: VAT, discount and more

**D.7** Find the percent: discount and mark-up

**D.8** Multi-step problems with percents

## **Measurement**

**E.1** Convert rates and measurements

**E.2** Precision

**E.3** Greatest possible error

**E.4** Minimum and maximum area and volume

**E.5** Percent error

**E.6** Percent error: area and volume

## **Lines and angles**

**F.1** Transversals: name angle pairs

**F.2** Transversals of parallel lines: find angle measures

**F.3** Identify complementary, supplementary, vertical, adjacent and congruent angles

**F.4** Find measures of complementary, supplementary, vertical and adjacent angles

## **Triangles**

**G.1** Classify triangles

**G.2** Triangle angle-sum property

**G.3** Exterior angle property

**G.4** Exterior angle inequality

**G.5** Angle-side relationships in triangles

**G.6** Triangle Inequality Theorem

**G.7** Midsegments of triangles

**G.8** SSS, SAS and ASA Theorems

**G.9** SSS Theorem in the coordinate plane

**G.10** Congruency in isosceles and equilateral triangles

**G.11** Hypotenuse-Leg Theorem

## **Quadrilaterals**

**H.1** Classify quadrilaterals

**H.2** Graph quadrilaterals

**H.3** Properties of parallelograms

**H.4** Proving a quadrilateral is a parallelogram

**H.5** Properties of rhombuses

**H.6** Properties of squares and rectangles

**H.7** Properties of trapeziums

**H.8** Properties of kites

**H.9**Review: properties of quadrilaterals

## **Polygons**

**I.1**Polygon vocabulary

**I.2**Interior angles of polygons

**I.3**Exterior angles of polygons

**I.4**Review: interior and exterior angles of polygons

## **Area and perimeter**

**J.1**Perimeter

**J.2**Area of rectangles and squares

**J.3**Area of parallelograms and triangles

**J.4**Area of trapeziums

**J.5**Area and circumference of circles

**J.6**Area of compound figures

**J.7**Area between two shapes

**J.8**Area and perimeter mixed review

**J.9**Heron's formula

## **Surface area and volume**

**K.1**Introduction to surface area and volume

**K.2**Surface area of prisms and cylinders

**K.3**Surface area of cones

**K.4**Volume of prisms and cylinders

**K.5**Volume of cones

**K.6**Surface area and volume of spheres

**K.7**Surface area and volume review

## **Circles**

**L.1**Parts of a circle

**L.2**Central angles

**L.3**Arc measure and arc length

**L.4**Area of sectors

**L.5**Circle measurements: mixed review

**L.6**Arcs and chords

**L.7**Tangent lines

**L.8**Perimeter of polygons with an inscribed circle

**L.9**Inscribed angles

**L.10**Angles in inscribed right triangles

**L.11**Angles in inscribed quadrilaterals

## **Constructions**

**M.1**Construct the midpoint or perpendicular bisector of a segment

**M.2**Construct an angle bisector

**M.3**Construct a congruent angle

**M.4**Construct an equilateral triangle or regular hexagon

## **Solve equations**

**N.1**Model and solve equations using algebra tiles

**N.2**Write and solve equations that represent diagrams

**N.3** Solve one-step linear equations

**N.4** Solve two-step linear equations

**N.5** Solve advanced linear equations

**N.6** Solve equations with variables on both sides

**N.7** Solve equations: complete the solution

**N.8** Find the number of solutions

**N.9** Create equations with no solutions or infinitely many solutions

**N.10** Solve linear equations: word problems

**N.11** Solve linear equations: mixed review

### **Data and graphs**

**O.1** Interpret bar graphs, line graphs and histograms

**O.2** Create bar graphs, line graphs and histograms

**O.3** Interpret pie charts

**O.4** Interpret stem-and-leaf plots

### **Problem solving**

**P.1** Word problems: mixed review

**P.2** Word problems with money

**P.3** Consecutive integer problems

**P.4** Rate of travel: word problems

**P.5** Weighted averages: word problems

### **Logic**

**Q.1** Identify hypotheses and conclusions

## **Q.2 Counterexamples**

### **Coordinate plane**

**R.1** Coordinate plane review

**R.2** Quadrants and axes

### **Direct variation**

**S.1** Identify proportional relationships

**S.2** Find the constant of variation

**S.3** Graph a proportional relationship

**S.4** Write direct variation equations

**S.5** Write and solve direct variation equations

### **Linear equations**

**T.1** Identify linear equations

**T.2** Find the slope of a graph

**T.3** Find the slope from two points

**T.4** Find a missing coordinate using slope

**T.5** Slope-intercept form: find the slope and y-intercept

**T.6** Slope-intercept form: graph an equation

**T.7** Slope-intercept form: write an equation from a graph

**T.8** Slope-intercept form: write an equation

**T.9** Slope-intercept form: write an equation from a table

**T.10** Slope-intercept form: write an equation from a word problem

**T.11** Linear equations: solve for y

- T.12 Write linear equations to solve word problems
- T.13 Compare linear equations, graphs and tables
- T.14 Write equations in standard form
- T.15 Standard form: find x- and y-intercepts
- T.16 Standard form: graph an equation
- T.17 Equations of horizontal and vertical lines
- T.18 Graph a horizontal or vertical line
- T.19 Slopes of parallel and perpendicular lines
- T.20 Write an equation for a parallel or perpendicular line

## **Exponents**

- U.1 Exponents with integer bases
- U.2 Exponents with decimal and fractional bases
- U.3 Negative exponents
- U.4 Multiplication with exponents
- U.5 Division with exponents
- U.6 Multiplication and division with exponents
- U.7 Power rule
- U.8 Evaluate expressions using properties of exponents
- U.9 Identify equivalent expressions involving exponents

## **Rational exponents**

- V.1 Evaluate rational exponents
- V.2 Multiplication with rational exponents
- V.3 Division with rational exponents



**V.4**Power rule with rational exponents

**V.5**Simplify expressions involving rational exponents I

**V.6**Simplify expressions involving rational exponents II

## **Logarithms**

**W.1**Convert between exponential and logarithmic form: rational bases

**W.2**Evaluate logarithms

**W.3**Change of base formula

**W.4**Identify properties of logarithms

**W.5**Product property of logarithms

**W.6**Quotient property of logarithms

**W.7**Power property of logarithms

**W.8**Properties of logarithms: mixed review

**W.9**Evaluate logarithms: mixed review

## **Scientific notation**

**X.1**Convert between standard and scientific notation

**X.2**Compare numbers written in scientific notation

**X.3**Multiply numbers written in scientific notation

**X.4**Divide numbers written in scientific notation

## **Monomials**

**Y.1**Identify monomials

**Y.2**Multiply monomials

**Y.3**Divide monomials

**Y.4** Multiply and divide monomials

**Y.5** Powers of monomials

## **Polynomials**

**Z.1** Polynomial vocabulary

**Z.2** Model polynomials with algebra tiles

**Z.3** Add and subtract polynomials using algebra tiles

**Z.4** Add and subtract polynomials

**Z.5** Add polynomials to find perimeter

**Z.6** Multiply a polynomial by a monomial

**Z.7** Multiply two polynomials using algebra tiles

**Z.8** Multiply two binomials

**Z.9** Multiply two binomials: special cases

**Z.10** Multiply polynomials

**Z.11** Write a polynomial from its roots

**Z.12** Find the roots of factorised polynomials

## **Factorising**

**AA.1** HCF of monomials

**AA.2** Factorise out a monomial

**AA.3** Factorise quadratics with leading coefficient 1

**AA.4** Factorise quadratics with other leading coefficients

**AA.5** Factorise quadratics: special cases

**AA.6** Factorise quadratics using algebra tiles

**AA.7** Factorise by grouping

**AA.8**Factorise polynomials

### **Quadratic equations**

**BB.1**Characteristics of quadratic equations

**BB.2**Complete a table: quadratic equations

**BB.3**Solve a quadratic equation using square roots

**BB.4**Solve a quadratic equation using the zero product property

**BB.5**Solve a quadratic equation by factorising

**BB.6**Solve a quadratic equation using the quadratic formula

### **Radical expressions**

**CC.1**Roots of integers

**CC.2**Roots of rational numbers

**CC.3**Find roots using a calculator

**CC.4**Nth roots

**CC.5**Simplify radical expressions with variables I

**CC.6**Simplify radical expressions with variables II

**CC.7**Multiply radical expressions

**CC.8**Divide radical expressions

**CC.9**Add and subtract radical expressions

**CC.10**Simplify radical expressions using the distributive property

**CC.11**Simplify radical expressions using conjugates

### **Rational expressions**

**DD.1**Simplify complex fractions

**DD.2**Simplify rational expressions

**DD.3**Multiply and divide rational expressions

**DD.4**Divide polynomials

**DD.5**Add and subtract rational expressions

**DD.6**Solve rational equations

## **Probability**

**EE.1**Theoretical probability

**EE.2**Experimental probability

**EE.3**Compound events: find the number of outcomes

**EE.4**Identify independent and dependent events

**EE.5**Probability of independent and dependent events

**EE.6**Factorials

**EE.7**Counting principle

## **Statistics**

**FF.1**Mean, median, mode and range

**FF.2**Quartiles

**FF.3**Identify biased samples

**FF.4**Variance and standard deviation