

Math Kangaroo Curriculum for grades 7 and 8

1a. Geometry – plane geometry

- Point, line, segment, angle, acute angle, right angle, obtuse angle, circle, radius, diameter, triangle, isosceles triangle, equilateral triangle, quadrilateral, square, rectangle, parallelogram, rhombus, trapezium, diagonal, regular polygon
- Symmetry, translation and rotation in the plane
- Sum of the angles of a triangle, sum of the angles of a square, angles formed by two parallel lines intersected by a third line
- Elementary propositions about angles, sides and diagonals in special triangles and quadrilaterals
- Perimeter and area of a square, rectangle, parallelogram, rhombus, trapezium, triangle
- Coordinates of a point in the plane

1b. Geometry – solid geometry

- Cube, regular parallelepiped, prism, pyramid, cone, cylinder, sphere
- Area and volume of a cube and a regular parallelepiped
- 3-d movement of one- and two-dimensional objects (such as knots and folding)
- Intuitive 2-d representation of a 3-d object

2. Numbers

- Calculations with integers and rational numbers (fractions or decimals)
- Prime numbers
- gcd and lcm
- Recognizing multiples of 2, 3, 4, 5, 6, 9 and 10
- Intuitive knowledge about the divisibility of a sum and a difference
- Powers with exponent 2
- Square root of a perfect square, cubic root of a perfect cube
- Combinatorial problems that do not involve any formulas
- Percentage
- Metric system (length, weight, area, volume, temperature ...)
- Problems using time, distance and velocity that do not involve algebraic calculation.
- Problems that involve only an intuitive knowledge of probability

3. Algebra

- Linear algebraic calculations (adding and subtracting monomials of degree 1, multiplying a rational number and a monomial of degree 1)
- Problems that can be reduced to a linear equation or inequality in one variable.

4. Logic

- Logic problems that can be solved in a limited number of steps or by analyzing a limited number of cases or hypotheses

