

## Do I know how to . . . ?

More basic stuff:

- Find the highest common factor (HCF), find the lowest common multiple (LCM) and show a number as a product of its prime factors
- Know what a square number, cube number and prime number are
- Find the order of rotational symmetry
- Add, subtract, multiply and divide fractions
- Convert between fractions, decimals and percentages
- Do long multiplication
- Find the percentage of an amount
- Name 2D and 3D shapes (these are easily forgotten!)
- Know what congruent means
- Find parallel lines, acute angles and obtuse angles
- Round numbers (e.g. to the nearest ten or to 2 d.p.)
- Write a number to a given amount of significant figures (e.g. write 24.576 to 3 sig.fig.)
- Write and plot coordinates
- Draw plans, side elevations and front elevations from a 3D shape
- Answer proportion questions, e.g. when given a recipe for 12 cakes and asked to work out the ingredients for 18 cakes
- Convert between metric and imperial units (e.g. inches to centimetres) and between different metric units (e.g. how many metres in a kilometre)

Mid-range difficulty:

- Find the perimeter and area of shapes
- Find the volume and surface area of 3D shapes
- Find angles on a straight line, at a point, in a triangle and in a quadrilateral
- Change between mixed numbers and top heavy fractions
- Divide a number into a given ratio, e.g. divide £1200 into the ratio 1 : 2 : 3
- Find and use the  $n$ th term of a sequence
- Work with indices (e.g.  $a^3 \times a^4$ ,  $a^5 \div a^2$ ,  $(a^2)^3$ )
- Find the area and circumference of a circle
- Collect algebraic terms together to simplify them (e.g.  $a + a + a + a + a = 5a$ )
- Expand and factorise brackets (algebra)
- Solve algebraic equations, like  $3x + 4 = 13$
- Know how to work with negative numbers, i.e. a minus times a minus equals a plus
- Find the mean, median, mode and range
- Work out an estimate of a given sum
- Complete a 2-way table
- Work out speed and use a distance-time graph
- Describe correlation on a scatter diagram and draw a line of best fit
- Design a suitable question for a questionnaire (question and response boxes)
- Use inequalities
- Multiply decimals (particularly with money problems)

Higher level of difficulty:

- Find the mean and median from grouped frequency tables
- Use Pythagoras' theorem
- Use trial and improvement
- Construct a stem and leaf diagram
- Draw a line graph when given the equation of the line, e.g.  $y = 2x + 4$
- Find probability
- Use bearings
- Rotate, reflect and translate shapes on a coordinate grid and describe a single transformation
- Enlarge a shape by a scale factor
- Solve algebraic equations with unknowns on both sides, like  $2x + 4 = x + 8$
- Substitute values into an equation
- Know and use the rules for angles on parallel lines (alternate, corresponding, opposite, co-interior)
- Work out the angles for a pie chart and draw it
- Work out currency conversion questions
- Answer questions involving perimeter or area when the lengths are written as algebraic expressions
- Find the exterior and interior angles of a polygon