

## Form 7 Autumn Examination Guidance

### Paper 1

- Decimal operations:
  - Add and subtract using column method.
  - Multiply using 'hats'
  - Multiply and divide using 'hops'
  - Divide using 'bus stop' method.
  - Long multiplication using hats first.
  - Divide by decimals, e.g.  $4.8 \div 0.08 = 480 \div 8$
- Simple fraction operations:
  - Add and subtract fractions by first changing to a common denominator (e.g.  $\frac{3}{8} + \frac{5}{6}$ )
  - Multiply fractions, 'top  $\times$  top, bottom  $\times$  bottom'
  - Divide fractions, invert right-hand fraction and then multiply fractions.
- Mixed number fractions operations:
  - Add and subtract mixed numbers.
  - Multiply and divide mixed numbers (change to improper first).
- Algebraic Substitution
  - Substitute expressions using integers (whole numbers), including negatives.  
e.g. if  $a = 4$ ,  $b = -3$ , work out  $2a - b$
- Ratio
  - Simplify ratios, e.g.  $24 : 96$  and  $0.9 : 2.7 : 1.8$
  - Splitting quantities, e.g. share £48 using ratio 1:2:5
  - Finding portions, e.g. If Mike gets £8, how much does Sally get?
  - Writing ratios, e.g. 12 boys and 18 girls in a class, express as a ratio in simplest form.
- Algebra Simplification, e.g.
  - $4a + 3b - 2b + 5a$  (listing method)
  - $cd \times 4d$  (expand then regroup)
  - $12mp \div 18mp^2$  (Fraction, Expand, Cancel) = F.E.C.
  - Multiply out brackets, e.g.  $8(3m + 6)$
  - Factorise fully:  $9pq + 36q^2$  put into brackets, i.e.  $9q(p + 4q)$
- Simple Circles
  - Work out the radius when given the diameter.
  - Know how to calculate the area of a circle given the formula with correct units
  - Know how to calculate the circumference given the formula with correct units
  - Round off answers to decimal places or significant figures.
- Advanced Circle problems:
  - Work out shaded area of shape.
  - Area of annuli or half annuli (ring shapes)

## Paper 2:

- Numbers
  - Know and identify primes, squares, cubes, factors, multiples.
  - Know that:
    - Difference means subtract
    - Sum means add
    - Product means multiply
- Know and identify the common quadrilaterals, i.e. rectangle, square, trapezium, kite, rhombus, parallelogram.
- Work out the Area of :-
  - Rectangles
  - Triangles
  - Parallelograms
- Understand how to find the perimeter of a shape.
- Read a bar chart correctly.
- Convert between units, e.g. write 320 ml in litres.
- Draw all of the lines of symmetry on common shapes.
- Probability: State the probability of an event using fractions, decimals and percentages.
- Solid shapes
  - Construct a simple net of a shape using instruments.
  - Count the number of edges, vertices and faces of a shape given the net.
- Calculate the mode, median, mean and range on a given data set.
- Substitute into a formula correctly.
- Number sequences:
  - Work out the pattern in a number sequence.
  - State the rule for a number sequence.
  - Find the next term in a sequence.