

# 8M1

[Mr Woffenden's class]

## Study Guide Mid-Year Examination 2011

**NOTE:** The examination will focus on work from Semester 1, but will include material from Mathematics you have covered previously in Year 7

### Semester 1

1. Using the calculator:
  - ❖ Understanding how to use your calculator for all the techniques we have studied. These include addition, subtraction, multiplication and division as well as knowing how to cope with calculations involving square and cube roots, raising a number to a power, fractions and ensuring calculations are done in the correct order by the use of brackets.
  
2. Pythagoras: [Chapter 3 text]
  - ❖ Knowing and understanding the relationship between the lengths of the sides of right angled triangles described in Pythagoras' theorem ( $a^2 + b^2 = c^2$ ).
  - ❖ Know how to use Pythagoras' theorem to solve problems such as finding the length of the hypotenuse or one of the shorter sides of a RAT.
  
3. Percentages: [Chapter 4 text]
  - ❖ Converting percentages to fractions and decimals and vice versa.
  - ❖ Finding a percentage of a quantity and expressing one quantity as a percentage of another.
  - ❖ Calculating percentage increase and decrease of a quantity
  - ❖ Profit and loss calculations involving percentages.
  - ❖ Calculations involving commission and simple interest.
  - ❖ Finding a quantity if a percentage is known.
  
4. Algebra: [Chapter 5 text]
  - ❖ Adding and subtracting algebraic terms
  - ❖ Multiplying and dividing algebraic terms.
  - ❖ Using algebra to represent situations described in words or diagrams.
  - ❖ Index notation
  - ❖ Understanding grouping symbols and knowing how to expand and simplify them.
  - ❖ Factorising algebraic expressions
  - ❖ Algebraic fractions – adding, subtracting, multiplying and dividing them
  
5. Area and volume: [Chapter 9 text]
  - ❖ Calculating areas of triangles, rectangles and composite shapes made up of them
  - ❖ Finding the area of special quadrilaterals such as the parallelogram, trapezium, rhombus and kite
  - ❖ Calculating the volume and surface area of prisms
  
6. Ratio, rates and scale drawings: [Chapter 11] If we get there!
  - ❖ Understanding what a ratio is, how it is described and how to calculate ratios.
  - ❖ Finding equivalent ratios and solving problems involving ratios
  - ❖ Dividing a quantity into a given ratio
  - ❖ What is a rate and how do you solve problems involving rates
  - ❖ Scale drawings, calculating real and scale dimensions.