Year 7 Exam Study Guide – Midyear Examinations 2016

The exam is 1.5 hours (90 minutes) and is 135 marks, below is a list of equipment which you will need to bring to the exam. Remember there is to be **no sharing** of equipment.

Equipment required:

- Calculator
- Ruler
- Blue/Black Pen
- Pencil for any diagrams or rough working
- Protractor

The following is a breakdown of everything you need to know within each topic.

Whole Number

- demonstrate the use of place value
- order whole numbers
- use a number line to represent whole numbers
- write whole numbers in numeral form and in words
- write whole numbers in expanded and simple form
- operate with values up to and greater than one million
- round numbers to the nearest 10, 100, 1000 etc.
- estimate answers by using leading figure approximations
- maintain addition, subtraction, multiplication and division facts
- demonstrate the instant recall of basic multiplication facts
- be able to apply the rules of BEDMAS.
- write and solve story problems involving one or more of the four arithmetic operations
- use a calculator and mental methods to perform the four operations
- perform calculations involving × and ÷ by powers of ten
- use algorithms involving addition, subtraction, multiplication and division
- recall the definition of natural and whole numbers
- explain odd, even, counting, square, triangular, prime, composite and square numbers
- find factors, multiples and lowest common multiples of numbers
- find the prime factorisation of composite numbers
- apply the distributive property
- be able to expand numbers written in index form and vice versa.
- apply the divisibility test for 2, 3, 4, 5, 8, 10

Patterns and Algebra

- continue a numerical or spatial pattern
- find missing values or diagrams in a pattern
- make patterns from a rule written in words or as a general formula
- write a rule in words that describes a pattern, either numerical or spatial
- write a general formula to describe a numerical or spatial pattern
- solve simple equations by inspection or intuition
- understand the language of Algebra
- find and explain in words, simple formulae that can be used to solve a practical problem
- substitute values into an equation to find the answer
- apply and interpret product notation
- write division of pronumerals in fraction form
- simplify expressions by collecting like terms
- apply commutative properties for addition and multiplication (eg. $a + b = b + a$ and $ab = ba$)
- graph input and output pairs on a number plane for relationship rules

Angles and Lines

- apply 3 point notation to name angles
- classify angles according to size
- use a protractor to measure or draw an angle
- calculate complementary and supplementary angles
- name a ray, line segment and line using correct notation
- define parallel, perpendicular and line intersection

Decimals

- add and subtract decimals
- multiply and divide decimals by powers of 10
- multiply and divide decimals by whole numbers
- convert decimals to fractions and percentages
- understand recurring and terminating decimals
- round decimals

Directed Numbers

- order positive and negative integers
- plot integers on a number line
- plot coordinates on all four quadrants of a Cartesian plane.

Problem Solving

- devise and use different problem-solving strategies to explore situations mathematically.
- find, and use with justification, a mathematical model as a problem solving strategy (working backwards, trial and error, drawing a picture or making a list)