

CONTENTS OF WORK FOR GRADE 9 NOVEMBER 2018 PAPER 1

TIME: 2HRS

MARKS:100

- Calculator required.

1. THE NUMBER SYSTEM

- 1.1 Classification (know the symbols).
- 1.2 Working with numbers including integers, fractions and decimals (adding, subtracting, multiplying, dividing and working with brackets).
- 1.3 Converting terminating and recurring decimals to fractions.
- 1.4 Prime, composite, multiples, factors, squares, cubes, square roots, cube roots.
- 1.5 Prime factorisation.
- 1.6 HCF and LCM.
- 1.7 Rational, Irrational and non-real (imaginary) numbers.
- 1.8 Problem solving (word type sums).
- 1.9 Financial maths

2. ALGEBRAIC EXPRESSIONS

- 2.1 Terminology (variable, coefficient etc.).
- 2.2 Arranging polynomials in ascending/descending order.
- 2.3 Expanding and simplifying expressions (including fractions).
- 2.4 Substitution in expressions.
- 2.5 Products – monomial and a binomial, two binomials (including squaring a binomial) and binomial and a trinomial.

3. FACTORISATION

- 3.1 Highest Common Factor (including bracketed expressions and switch rounds).
- 3.2 Difference of two squares.
- 3.3 Trinomials.

4. ALGEBRAIC FRACTIONS

- 4.1 Factorising and simplifying.
- 4.2 Addition, subtraction, multiplication and division.

5. SOLVING EQUATIONS

- 5.1 Basic equations.
- 5.2 Equations with brackets.
- 5.3 Equations with fractions.
- 5.4 Quadratic equations.

6 EXPONENTS

- 6.1 Terminology.
- 6.2 Laws of exponents.
- 6.3 Zero as an exponent.
- 6.4 Negative exponents.
- 6.5 Application of all the laws (addition, subtraction, multiplication and division with no calculator).
- 6.6 Exponential equations.
- 6.7 Scientific Notation.

7 NUMBER PATTERNS

- 7.1 Identifying patterns.
- 7.2 Finding the Rule for a pattern as a formula.
- 7.3 Filling in missing terms.
- 7.4 Input/ Output using flow diagram, table or formula.
- 7.5 Recognising a common difference or common ratio.
- 7.6 Finding a formula for the n^{th} term T_n .
- 7.7 Finding the value of a term given T_n .
- 7.8 Finding the n^{th} term for a very basic geometric or quadratic sequence.

8 RATIO, RATE AND PROPORTION

- 8.1 Ratios – Equivalent ratios, increasing/decreasing in a given ratio.
- 8.2 Dividing in a given ratio.
- 8.3 Problem solving using ratios.
- 8.4 Direct and Inverse Proportion
- 8.5 Problem solving using proportion.
- 8.6 Graphical representation of Direct and Inverse proportion.
- 8.7 Rates.
- 8.8 Problem solving using rates (including speed/distance/time problems).

9. FUNCTIONS

- 9.1 Input and Output values.
- 9.2 Flow diagrams
- 9.3 Tables
- 9.4 Formulae
- 9.5 Equations
- 9.6 Sketching linear functions
- 9.7 Finding gradients
- 9.8 Reading off gradients from a straight line graph.
- 9.10 Interpreting graph questions.
- 9.11 Finding equations of linear functions

9. FINANCIAL MATHS

9.1 Simple Interest

9.2 Foreign Exchange