Year 10 Mathematics (10BBR, 10RS and 10AK)
Winter Examination Checklist

Students should be able to:	For example: Evaluate $3^2 \times 2^3$
• use index notation and index laws for whole number powers;	Know that $2^3 \times 2^4 = 2^7$ $4^5 \div 4^2 = 4^3$ $(3^2)^4 = 3^8$
• use the concepts and vocabulary of divisor, highest common factor, least (lowest) common multiple and prime factor decomposition;	Find the Highest Common Factor (HCF) and Lowest Common Multiple (LCM) of two whole numbers. Know that there is a unique way of writing a number as a product of prime factors. Express, for example: 147 as $3 \times 7 \times 7$ or 3×7^2
• add, subtract, multiply and divide decimals of any size;	Add, subtract, multiply and divide any numbers, including negative numbers and fractions.
• round to a specified or appropriate number of significant figures;	
• recognise that recurring decimals are exact fractions and that some exact fractions are recurring decimals;	Use division to convert a simple fraction to a decimal e.g. $\frac{1}{6} = 0.1\dot{6}$
• add, subtract, multiply and divide fractions, including mixed numbers	For example: Work out $3\frac{1}{5} + 2\frac{3}{4}$
• use percentage and repeated proportional change;	For example, calculate how much the value of a car has depreciated after 3 years.
• calculate with money and solve problems in the context of finance, for example compound interest, insurance, taxation, mortgages and investments;	Calculation of compound interest is restricted to a maximum of three iterations.

• simplify and manipulate algebraic expressions by multiplying a single term over a bracket;	For example: Know that x (2x +3)= 2x²+ 3x
• manipulate algebraic expressions by taking out common factors which are terms;	Know that, for example $x^2 - 3x = x(x - 3)$ and vice versa.
• set up and solve linear equations in one unknown.	Use algebra to solve a problem such as 'If I double a number, then add 1 and the result is 49, what is the number?'
• multiply two linear expressions;	For example, expand and simplify $(x + 4)(x - 2)$ Know that $(a \pm b)^2 = a^2 \pm 2ab + b^2$
• factorise quadratic expressions of the form • $x^2 + bx + c$;	For example: $x^2 - 8x + 15 = (x - 3)(x - 5)$
• factorise using the difference of two squares;	$x^2 - 16 = (x - 4)(x + 4)$, for example.
• calculate the upper and lower bounds in calculations involving addition and multiplication of numbers expressed to a given degree of accuracy;	For example: Given the sides of a rectangle correct to the nearest unit, calculate the range of values within which the area lies.
• know the difference between an equation and an identity;	Know the meaning of and use the word 'identity'. Understand the identity symbol.