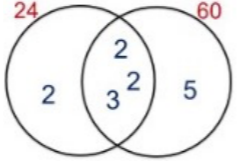
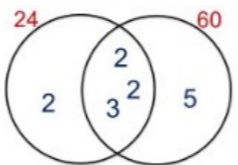




MATHEMATICS - YEAR 9 HIGHER - BLOCK 1

A NUMBER		
1	To find the total number of possible outcomes for two or more events	Multiply the number of outcomes for each event together
2	First 10 prime numbers	2, 3, 5, 7, 11, 13, 17, 19, 23, 29
3	To write a number as the product of its prime factors	Use a prime factor tree
4	Find the Highest Common Factor (HCF) from a Venn Diagram	Multiply all the terms in the centre of the Venn Diagram together, e.g:  HCF: $2 \times 2 \times 3 = 12$
5	Find the Lowest Common Multiple (LCM) from a Venn Diagram	Multiply all of the terms in the Venn Diagram together, e.g:  LCM: $2 \times (2 \times 2 \times 3 \times 5) = 120$
6	$a^x \times a^y$	a^{x+y}
7	$\frac{a^x}{a^y}$	a^{x-y}
8	$(a^x)^y$	a^{xy}
9	a^0	1
10	$\left(\frac{a}{b}\right)^{-x}$	$\left(\frac{b}{a}\right)^x$
11	$a^{\frac{x}{y}}$	$(\sqrt[y]{a})^x$
12	Standard form	Written in the form where
13	When the number is greater than, or equal to 1	The power is positive

14	When the number is less than 1	The power is negative
15	Multiplication of numbers in standard form	Multiply the coefficients, add the powers.
16	Division of numbers in standard form	Divide the coefficients, subtract the powers.
17	Addition and subtraction of numbers in standard form	If the powers are equal, add the coefficients. If not, rewrite with equal powers, then add the coefficients.
18	Irrational number	A number that cannot be expressed as a fraction
19	Surd	A number in root form that is irrational (e.g. $\sqrt{2}$)
20	Simplifying surds	First identify any factors that are square numbers
21	Rationalise a denominator	Multiply the numerator and denominator by the surd in the denominator and simplify

B ALGEBRA		
1	Arithmetic sequence	Have a constant common difference
2	Fibonacci sequence	A sequence formed by adding the two previous terms
3	Geometric sequences	The terms increase (or decrease) by a constant multiplier. The n^{th} term is ar^n
4	Quadratic sequences	Have a common second difference and can be written in the form $an^2 + bn + c$
5	The first 3 terms of any quadratic sequence	$a + b + c$ $4a + 2b + c$ $9a + 3b + c$
6	Quadratic expression	An expression with a squared term and no higher power
7	Expanding double brackets	Write as two single brackets , expand, then simplify. For example: $(x + 3)(x + 2)$ $x(x + 2) + 3(x + 2)$ $x^2 + 2x + 3x + 6$ $x^2 + 5x + 6$
8	$(x + a)^2$	$(x + a)(x + a)$