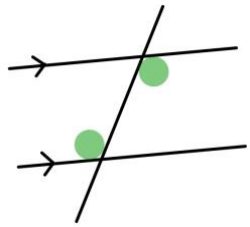
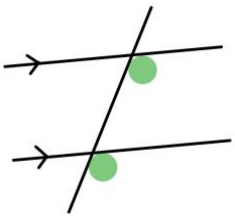
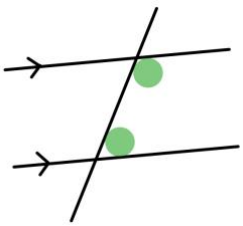
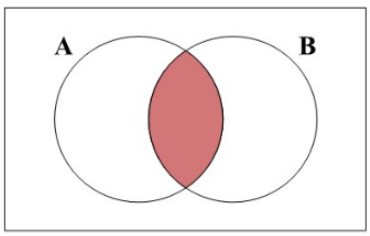
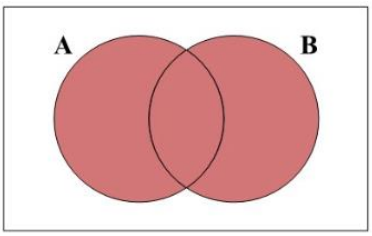
Year 10.1H Knowledge Sheet

Pythagoras' Theorem	$a^2 + b^2 = c^2$
Finding the distance between two points	Pythagoras' Theorem $\sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$
The midpoint of two coordinates	$\left(\frac{x_1 + x_2}{2}, \frac{y_1 + y_2}{2}\right)$
Gradient	$m = \frac{y_2 - y_1}{x_2 - x_1}$
Equation of a straight line	$y = mx + c$
Compound interest	initial x multiplier$_{time}$
Trigonometric functions	SOH CAH TOA $sinx = \frac{opp}{hyp}$ $cosx = \frac{adj}{hyp}$ $tanx = \frac{opp}{adj}$
Bearing	A direction given in degrees (3 figures), clockwise round from north.
Standard form	$a \times 10^b$ where $1 \leq a < 10$
Speed	$Speed = \frac{Distance}{Time}$
Circumference of a circle	$C = \pi d$
Area of a circle	$A = \pi r^2$

Sum of the interior angles of a polygon	$(n-2) \times 180$ n is the number of sides
Exterior angles of a polygon	Add up to 360^0
Each interior and each exterior angle of a polygon	Add up to 180^0
	Alternate angles are equal
	Corresponding angles are equal
	Co-interior angles add to 180^0
Multiplication law for indices	$a^b \times a^c = a^{b+c}$
Division law for indices	$a^b \div a^c = a^{b-c}$
Power to a power rule for indices	$\left(a^b\right)^c = a^{bc}$
Zero law for indices	$a^0 = 1$
Negative power law for indices	$\left(\frac{a}{b}\right)^{-c} = \left(\frac{b}{a}\right)^c$

Volume of a prism	Area of the cross-section x length
Volume of a cylinder	$\pi r^2 h$
Volume of a pyramid	$\frac{1}{3}$ x $area\ of\ the\ base$ x $height$
Volume of a cone	$\frac{1}{3}\pi r^2 h$
Surface area of a prism	The sum of the areas of each face
Surface area of a cylinder	$2\pi r^2 + 2\pi rh$
Surface area of a pyramid	$A + \frac{1}{2}pl$ A= area of the base P = perimeter of the base l = slant height
Surface area of a cone	$\pi rl + \pi r^2$ r = radius l = slant height
Density	$\frac{mass}{volume}$
Area of a sector	$\frac{\theta}{360}$ x πr^2
Arc length	$\frac{\theta}{360}$ x $2\pi r$
Converting a fraction to a recurring decimal	Write the fraction as a division and use short division to solve.

Converting recurring decimals to fractions	Form an equation with $x =$ the decimal number and subtract a multiple of x to cancel out numbers after the decimal point. Rearrange for a fraction.
Set	A specific group of items or numbers, called elements. $A = \{...\}$
Universal set	ξ or the list of possible elements, shown on a Venn diagram as the box around the circle.
Intersection of A and B	$(A \cap B)$ 
Union of A or B	$(A \cup B)$ 
Complement of A	(A')