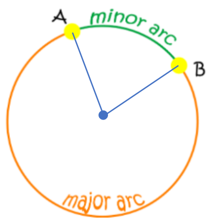
N5 formulae given in your exam

Pyramid	Volume $= \frac{1}{3}Ah$	A is the area of the base h is the vertical height
Cone	Volume $= \frac{1}{3}\pi r^2 h$	r is the radius h is the vertical height
Sphere	Volume $= \frac{4}{3}\pi r^3$	
Quadratic formula	$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$	a, b and c come from $ax^2 + bx + c$
Area of a triangle	$A = \frac{1}{2}ab\sin C$	C is the angle between the sides a and b.
Sine Rule	$\frac{a}{\sin A} = \frac{b}{\sin B} = \frac{c}{\sin C}$	Usually only two fractions worked with at one time
Cosine rule	$a^2 = b^2 + c^2 - 2bc\cos A$	Use when finding a side
Cosine rule	$\cos A = \frac{b^2 + c^2 - a^2}{2bc}$	Use when finding an angle
Standard deviation	$\sqrt{\frac{\sum(x-\bar{x})^2}{n-1}}$	Usually requires making a table
Standard deviation	$\sqrt{\frac{\sum x^2 - \frac{(\sum x)^2}{n}}{n-1}}$	Can be faster

N5 formulae not given in the exam

Percentage increase or decrease	$\frac{\text{increase or decrease}}{\text{original amount}} \times 100$	
Find the original amount after a percentage change (calculator)	$\frac{\text{final amount}}{\text{\% change}}$	e.g. $\frac{\text{final amount}}{1.2}$ will find the original amount after an increase of 20%
Appreciation/depreciation (calculator)	original amount × percentage^n	e.g. amount $\times 1.04^5$ calculates an increase of 4% each year for 5 years (n = days, years, etc.)
Gradient	$m = \frac{y_2 - y_1}{x_2 - x_1}$	(x_1, y_1) and (x_2, y_2) are points on the line
Straight line	$y = mx + c$	m represents gradient c is where the line crosses the $y-$axis
Straight line	$y - b = m(x - a)$	m represents gradient and (a,b) is a point on the line. Use when you don't know the $y-$intercept.
Minor and Major Arc		If you have two points A & B on a circle, the minor arc is the shortest arc joining them while the major arc is the longest.
Arc length	$= \frac{\theta}{360} \times \pi d$	θ is the sector angle

Sector area	$=\frac{\theta}{360}\times\pi r^2$	θ is the sector angle
Sector angle	$\theta=\frac{\text{arc}}{\pi d}\times 360$	Use when given arc length
Sector angle	$\frac{\text{sector}}{\pi r^2}\times 360$	Use when given sector area
Scale factor for area	$(\text{lsf})^2$	lsf is the linear scale factor and may be a fraction
Scale factor for volume	$(\text{lsf})^3$	lsf is the linear scale factor and may be a fraction
Area of a triangle	$A=\frac{1}{2}bh$	The base b and the height h must meet at 90°
Area of a circle	$A=\pi r^2$	r is the radius
Volume of a cylinder	$V=\pi r^2 h$	r is radius h is height (or length if the cylinder is horizontal
Curved surface area of a cylinder	$A=2\pi rh$	

Total surface area of a closed cylinder	$A = 2\pi rh + 2\pi r^2$	This is the curved surface area plus the two circular ends
Discriminant	$b^2 - 4ac$	Use to find the "nature" of the roots for a quadratic equation
Nature of roots	$b^2 - 4ac > 0$	"Two real and distinct roots"
Nature of roots	$b^2 - 4ac = 0$	"One repeated real root" or "two real and distinct roots"
Nature of roots	$b^2 - 4ac < 0$	"No real roots"
Pythagoras' Theorem	$a^2 + b^2 = c^2$	Use in right-angled triangles to find a missing side length. c is the hypotenuse
Right-angled triangle trigonometry	$\sin x = \frac{\text{opposite}}{\text{hypotenuse}}$	Sides are labelled in relation to the angle you are working with
Right-angled triangle trigonometry	$\cos x = \frac{\text{adjacent}}{\text{hypotenuse}}$	Sides are labelled in relation to the angle you are working with
Right-angled triangle trigonometry	$\tan x = \frac{\text{opposite}}{\text{adjacent}}$	Sides are labelled in relation to the angle you are working with

Trig identity	$\sin^2 x + \cos^2 x = 1$	Be prepared to rearrange this identity
Trig identity	$\frac{\sin x}{\cos x} = \tan x$	Be prepared to rearrange this identity
Magnitude of a vector	$\lvert \underset{\sim}{\mathbf{v}} \rvert = \sqrt{x^2 + y^2 + z^2}$	where $\underset{\sim}{\mathbf{v}} = \begin{pmatrix} x \\ y \\ z \end{pmatrix}$
Find the mean	$\overline{x} = \frac{\sum x}{n}$	n is the number of data items
Semi Interquartile range	$\text{SIQR} = \frac{Q_3 - Q_1}{2}$	Q_3 and Q_1 are upper and lower quartiles respectively
Multiplying with indices	$a^m \times a^n = a^{m+n}$ $pa^m \times qa^n = pqa^{m+n}$	a is the base Add the indices p and q multiply as usual
Dividing with indices	$a^m \div a^n = a^{m-n}$ $pa^m \div qa^n = \frac{p}{q} a^{m-n}$	a is the base Subtract the indices p and q divide as usual
"Powers of powers"	$\left(a^m\right)^n = a^{mn}$ $\left(pa^m\right)^n = p^n a^{mn}$	a is the base Multiply the indices p gets raised to the n^{th} power as usual
Important results	$a^1 = a$ $a^0 = 1$	

Negative indices	$a^{-m} = \dfrac{1}{a^m}$	Any term with a negative index can be re-written as a fraction with a positive index and vice-versa
Fractional indices	$a^{\frac{m}{n}} = \sqrt[n]{a}^{\,m}$	Any term with a fractional index can be re-written using a root sign and vice-versa
Multiplying surds	$\sqrt{ab} = \sqrt{a} \times \sqrt{b}$	
Dividing surds	$\sqrt{\dfrac{a}{b}} = \dfrac{\sqrt{a}}{\sqrt{b}}$	
Important results	$\sqrt{a} \times \sqrt{a} = a$ $\sqrt{a} = a^{\frac{1}{2}}$ $\sqrt[3]{a} = a^{\frac{1}{3}}$ $\sqrt[4]{a} = a^{\frac{1}{4}}$	

1^2	2^2	3^2	4^2	5^2	6^2	7^2	8^2	9^2	10^2	1^3	2^3	3^3	4^3
1	4	9	16	25	36	49	64	81	100	1	8	27	64