

Formulas etc. for the national test in mathematics, year 9

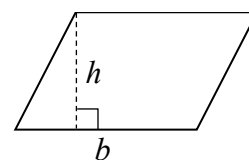
PREFIXES

Symbol Name	T tera	G giga	M mega	k kilo	h hecto	d deci	c centi	m milli	μ micro	n nano
Power of 10	10^{12}	10^9	10^6	10^3	10^2	10^{-1}	10^{-2}	10^{-3}	10^{-6}	10^{-9}

GEOMETRY

Parallelogram

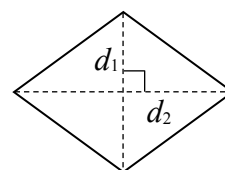
$$\text{area} = b \times h$$



Rhomb

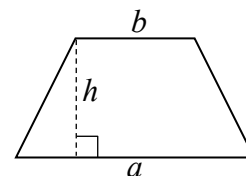
$$\text{area} = \frac{d_1 \times d_2}{2}$$

d_1 and d_2 are diagonals



Parallel trapezium

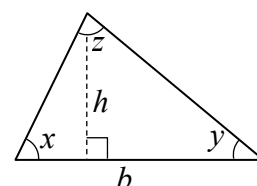
$$\text{area} = \frac{h(a+b)}{2}$$



Triangle

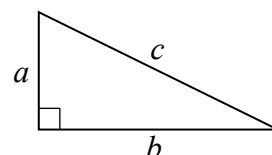
$$\text{area} = \frac{b \times h}{2}$$

sum of angle measures =
 $x + y + z = 180^\circ$



Pythagoras' theorem

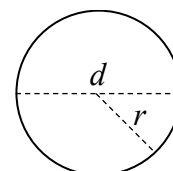
$$a^2 + b^2 = c^2$$



Circle

$$\text{area} = \pi \times r^2$$

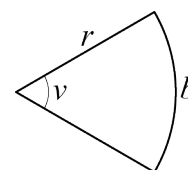
$$\text{circumference} = \pi \times d = 2 \times \pi \times r$$



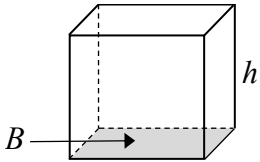
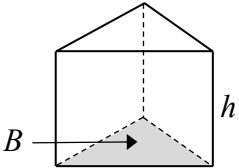
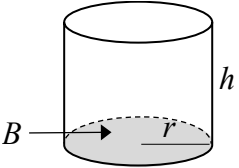
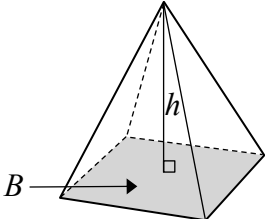
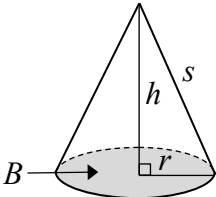
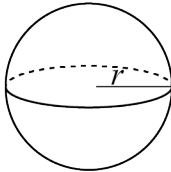
Circle sector

$$\text{arc length } b = \frac{v}{360^\circ} \times 2 \times \pi \times r$$

$$\text{area} = \frac{v}{360^\circ} \times \pi \times r^2 = \frac{b \times r}{2}$$



Please turn over!

Cuboid	volume = $B \times h$	
Prism	volume = $B \times h$	
Cylinder	<i>Right circular cylinder</i> volume = $B \times h$ lateral area = $2 \times \pi \times r \times h$	
Pyramid	volume = $\frac{B \times h}{3}$	
Cone	<i>Right circular cone</i> volume = $\frac{B \times h}{3}$ lateral area = $\pi \times r \times s$	
Sphere	volume = $\frac{4 \times \pi \times r^3}{3}$ area = $4 \times \pi \times r^2$	
Scale	area scale factor = (length scale factor) ² volume scale factor = (length scale factor) ³	
FUNCTIONS	Equation of a line $y = kx + m$ if $y = kx$ then y is proportional to x	
EXPONENTS	For all number x and y and positive numbers a $a^x \times a^y = a^{x+y}$ $a^{-x} = \frac{1}{a^x}$ $\frac{a^x}{a^y} = a^{x-y}$ $a^0 = 1$ $(a^x)^y = a^{xy}$	