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

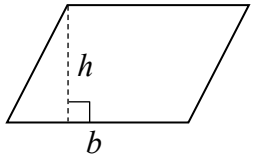
PREFIXES

Symbol	T	G	M	k	h	d	c	m	µ	n
Name	tera	giga	mega	kilo	hecto	deci	centi	milli	micro	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

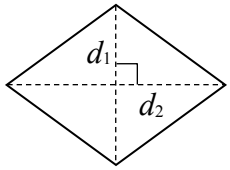
area $= b \times h$



Rhomb

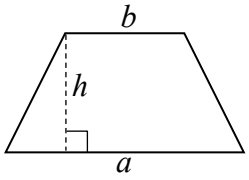
area $= \dfrac{d_1 \times d_2}{2}$

d_1 and d_2 are diagonals



Parallel trapezium

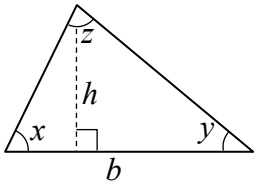
area $= \dfrac{h(a+b)}{2}$



Triangle

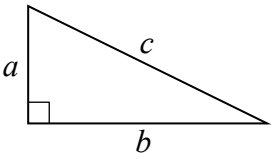
area $= \dfrac{b \times h}{2}$

sum of angle measures = $x + y + z = 180°$



Pythagoras' theorem

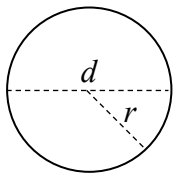
$a^2 + b^2 = c^2$



Circle

area $= \pi \times r^2$

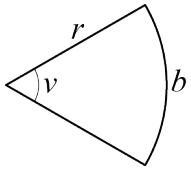
circumference = $\pi \times d = 2 \times \pi \times r$



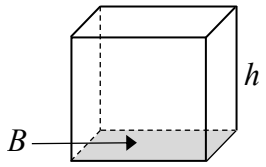
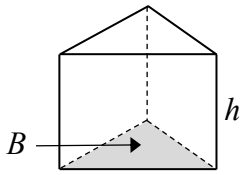
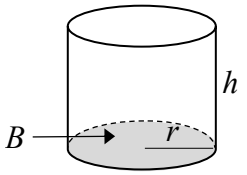
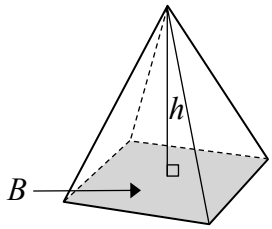
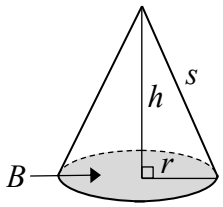
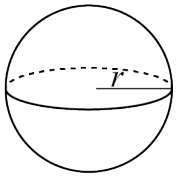
Circle sector

arc length $b = \dfrac{v}{360°} \times 2 \times \pi \times r$

area $= \dfrac{v}{360°} \times \pi \times r^2 = \dfrac{b \times r}{2}$



Please turn over!

	Cuboid	volume $= B \times h$	
	Prism	volume $= B \times h$	
	Cylinder	*Right circular cylinder* volume $= B \times h$ lateral area $= 2 \times \pi \times r \times h$	
	Pyramid	volume $= \dfrac{B \times h}{3}$	
	Cone	*Right circular cone* volume $= \dfrac{B \times h}{3}$ lateral area $= \pi \times r \times s$	
	Sphere	volume $= \dfrac{4 \times \pi \times r^3}{3}$ 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		
	$a^x \times a^y = a^{x+y}$	$\dfrac{a^x}{a^y} = a^{x-y}$	$\left(a^x\right)^y = a^{xy}$
	$a^{-x} = \dfrac{1}{a^x}$	$a^0 = 1$	