Formula sheet for the national test in mathematics, year 9

PREFIXES

T	G	M	k	h	da	d	c	m	µ	n	p
tera	giga	mega	kilo	hecto	deca	deci	centi	milli	micro	nano	pico
10^{12}	10^{9}	10^{6}	10^{3}	10^{2}	10^{1}	10^{-1}	10^{-2}	10^{-3}	10^{-6}	10^{-9}	10^{-12}

EXPONENTS

For all numbers x and y and positive numbers a

$$a^x \cdot a^y = a^{x+y} \qquad \frac{a^x}{a^y} = a^{x-y} \qquad \left(a^x\right)^y = a^{x \cdot y} \qquad a^{-x} = \frac{1}{a^x} \qquad a^0 = 1$$

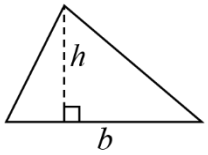
FUNCTIONS

Equation of a straight line $y = kx + m$

GEOMETRY

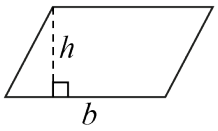
Triangle

$$A = \frac{b \cdot h}{2}$$



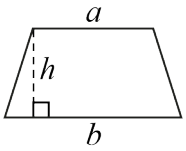
Parallelogram

$$A = b \cdot h$$



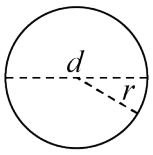
Parallel trapezium

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



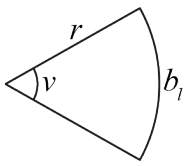
Circle

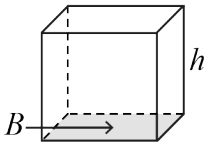
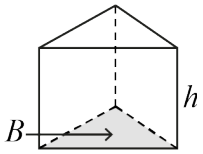
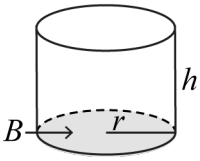
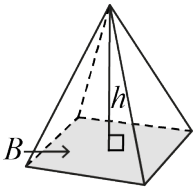
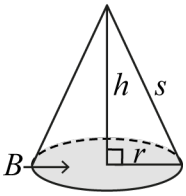
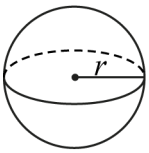
$$A = \pi \cdot r^2$$
$$C = \pi \cdot d = 2 \cdot \pi \cdot r$$



Circle sector

$$A = \frac{v}{360°} \cdot \pi \cdot r^2$$
$$b_l = \frac{v}{360°} \cdot 2 \cdot \pi \cdot r$$



Cuboid	$V = B \cdot h$	
Prism	$V = B \cdot h$	
Cylinder Right circular	$V = B \cdot h$ Lateral surface area $A_m = 2 \cdot \pi \cdot r \cdot h$	
Pyramid	$V = \frac{B \cdot h}{3}$	
Cone Right circular	$V = \frac{B \cdot h}{3}$ Lateral surface area $A_m = \pi \cdot r \cdot s$	
Sphere	$V = \frac{4 \cdot \pi \cdot r^3}{3}$ $A = 4 \cdot \pi \cdot r^2$	
Scale	area scale factor = (length scale factor)^2 volume scale factor = (length scale factor)^3	
Pythagoras theorem	$a^2 + b^2 = c^2$