



MATHEMATICS:

UNITS 2A AND 2B

FORMULA SHEET

2012

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Numbers and algebra

Equation of a line: $y = mx + c$, where $m =$ gradient; $c =$ y -intercept

Space and measurement

Gradient of line, m , through the points (x_1, y_1) and (x_2, y_2) is given by $m = \frac{y_2 - y_1}{x_2 - x_1}$

Distance d , between the points (x_1, y_1) and (x_2, y_2) is given by $d = \sqrt{(y_2 - y_1)^2 + (x_2 - x_1)^2}$

In a right triangle: $\sin \theta = \frac{\text{opposite}}{\text{hypotenuse}}$ $\cos \theta = \frac{\text{adjacent}}{\text{hypotenuse}}$ $\tan \theta = \frac{\text{opposite}}{\text{adjacent}}$

Pythagoras' Theorem: In a right triangle ABC , where a, b are the short sides and c is the hypotenuse, $c^2 = a^2 + b^2$

Circle: $C = 2\pi r = \pi D$, where C is the circumference, r is the radius and D is the diameter
 $A = \pi r^2$, where A is the area

Triangle: $A = \frac{1}{2}bh$, where b is the base and h is the perpendicular height

Parallelogram: $A = bh$

Trapezium: $A = \frac{1}{2}(a + b)h$, where a and b are the lengths of the parallel sides and h is the perpendicular height

Prism: $V = Ah$, where V is the volume, A is the area of the base and h is the perpendicular height

Pyramid: $V = \frac{1}{3} Ah$

Cylinder: $S = 2\pi rh + 2\pi r^2$, where S is the total surface area
 $V = \pi r^2 h$

Cone: $S = \pi rs + \pi r^2$, where s is the slant height
 $V = \frac{1}{3} \pi r^2 h$

Sphere: $S = 4\pi r^2$
 $V = \frac{4}{3} \pi r^3$

Note: Any additional formulas identified by the examination panel as necessary will be included in the body of the particular question.