MOJZA

AS MATHS FORMULA SHEET

PURE MATHEMATICS 1 (P1)

BY TEAM MOJZA

Quadratics

-Quadratic Formula: $\frac{-b\pm\sqrt{b^2-4ac}}{2a}$

Coordinate geometry

-Gradient of a straight line: $\frac{(y2-y1)}{(x2-x1)}$

-Distance between two points:

$$\sqrt{(x_2-x_1)^2+(y_2-y_1)^2}$$

-Midpoint of two points: $\frac{(x_2+x_1)}{2},\frac{(y_2+y_1)}{2}$

-Equations of lines:

$$y = mx + c$$

$$(y-y_1) = m(x-x_1)$$

Y is the y coordinate , X is the x coordinate
m is the gradient , C in the y intercept

-Equation of circle:

$$(x-A)^2+(y-B)^2=r^2$$

A is the X coordinate of the center of the circle
B is the Y coordinate of the center of the circle
r is the radius of the circle

Circular Measure

$$S = r\theta \quad A = (\frac{\theta}{2}) \times r^2$$

S is the arc length A is area of the sector
r is the radius of the sector
θ Is the angle of the sector

Trigonometry

$$\frac{cos\theta}{sin\theta} = tan\theta \qquad sin^2\theta + cos^2\theta = 1$$

Series

-Arithmetic Series:

$$s = \frac{n}{2}(a+l)$$

$$S = \frac{n}{2}(2a+(n-1)d)$$

$$n = a+(n-1)d$$

-Geometric Series:

nth term: $a\,r^{n-1}$

a is the first term
r is the common ratio of every two successive terms
n is the number of terms

Sum of n terms:

$\frac{a(1-r^n)}{(1-r)}$(or) $\frac{a(r^n-1)}{(r-1)}$

a is the first term
r is the common ratio every two consecutive terms

Sum of infinite geometric series:

$\frac{a}{(1-r)}$

a is the first term
r is the common ratio every two successive terms

-Binomial Series

$(x+y)^n = {}^nC_0\,x^n + {}^nC_1\,x^{n-1}.y + {}^nC_2\,x^{n-2}.y^2 + \ldots + {}^nC_n\,y^n$