Formula sheet – IGCSE Further Pure Mathematics

Surface area of sphere equals 4 pi r squared.

Curved surface area of cone equals pi r multiplied by slant height.

Volume of sphere equals 4 thirds, pi r cubed.

Arithmetic series,

Sum to n terms, S subscript n, equals, n over 2, [2 A, plus (n minus 1) d].

Geometric Series,

Sum to n terms, S subscript n equals, start fraction, A, (1 minus r to the power of n), over, (1 minus r), end fraction.

Sum to infinity, S subscript infinity equals, start fraction, A, over, 1 minus r, end fraction, the modulus of r is less than 1.

Binomial series

(1 plus x) to the power of n, equals, 1 plus n x, plus start fraction, n (n minus 1) over 2 factorial, end fraction, x squared plus ellipsis, plus, start fraction, n (n minus 1) ellipsis, (n minus r plus 1), over, r factorial, end fraction, x to the power of r plus ellipsis, for the modulus of x is less than 1, n is an element of the set of rational numbers.

Quotient Rule

D by dx (f of x over g of x) equals, start fraction, f dash of x, g of x, minus, f of x, g dash of x, over, [g of x] squared, end fraction.

Cosine rule

In triangle Upper case A, B C: lower case A, squared equals, lowercase b squared plus lowercase c squared minus, 2 lowercase b c coz Uppercase A.

Tan theeta equals, start fraction, sine theeta over coz theeta, end fraction.

Sine (A, plus B) equals, sine A, coz B, plus, coz A, sine B

 Sine (A, minus B) equals, sine A, coz B, minus, coz A, sine B

Coz (A, plus B) equals, coz A, coz B, minus, sine A, sine B

Coz (A, minus B) equals, coz A, coz B, plus, sine A, sine B

Tan (A, plus B) equals, start fraction, tan A, plus tan B, over, 1 minus tan A, tan B, end fraction.

Tan (A, minus B) equals, start fraction, tan A, minus tan B, over, 1 plus tan A, tan B, end fraction.

Logarithms

Log base A, of x equals, start fraction, log base b of x, over, log base b of A, end fraction.