BECA / IB Math 5 Exponential functions Name:
7 March 2022

Formula Sheet

Arithmetic sequences

Terms: $u_n = u_1 + d(n-1)$

Sum: $S_n = \frac{n}{2}(u_1 + u_n)$

Equations of a straight line

Slope-intercept form: $f(x) = mx + c$

Standard form: $ax + by + d = 0$

Point-slope form: $(y - y_1) = m(x - x_1)$

Gradient: $m = \frac{y_2 - y_1}{x_2 - x_1}$

Equations of quadratic functions

Standard form: $f(x) = ax^2 + bx + c$, with y-intercept c, axis of symmetry $x = -\frac{b}{2a}$

Solutions to $f(x) = 0$ (quadratic formula):

$x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

Factored form: $g(x) = a(x - p)(x - q)$

has x-intercepts p, q and axis of symmetry $x = \frac{p + q}{2}$

Vertex form: $h(x) = a(x - h)^2 + k$, with vertex (h, k)

Compound interest

$FV = PV \times \left(1 + \frac{r}{100k}\right)^{kn}$ where FV is the future value,

PV is the present value, n is the number of years,

k is the number of compounding periods per year,

r% is the nominal annual rate of interest