

*****Euler's Method (BC topic)**

Euler's Method is a way of approximating points on the solution of a differential equation

$\frac{dy}{dx} = f(x, y)$. The calculation uses the tangent line approximation to move from one point to the

next. That is, starting with the given point (x_1, y_1) – the initial condition, the point

$(x_1 + \Delta x, y_1 + f'(x_1, y_1)\Delta x)$ approximates a nearby point on the solution graph. This

approximation may then be used as the starting point to calculate a third point and so on. The accuracy of the method decreases with large values of Δx . The error increases as each successive point is used to find the next.

$(x, y) : \text{given}$	$\frac{dy}{dx} : \text{given}$	$\Delta x : \text{given}$	$\Delta y = \frac{dy}{dx} \Delta x$	$(x + \Delta x, y + \Delta y)$
Start again				

Euler's Method

(x, y)	$\frac{dy}{dx}$	Δx	$\Delta y = \frac{dy}{dx} \Delta x$	(x, y)