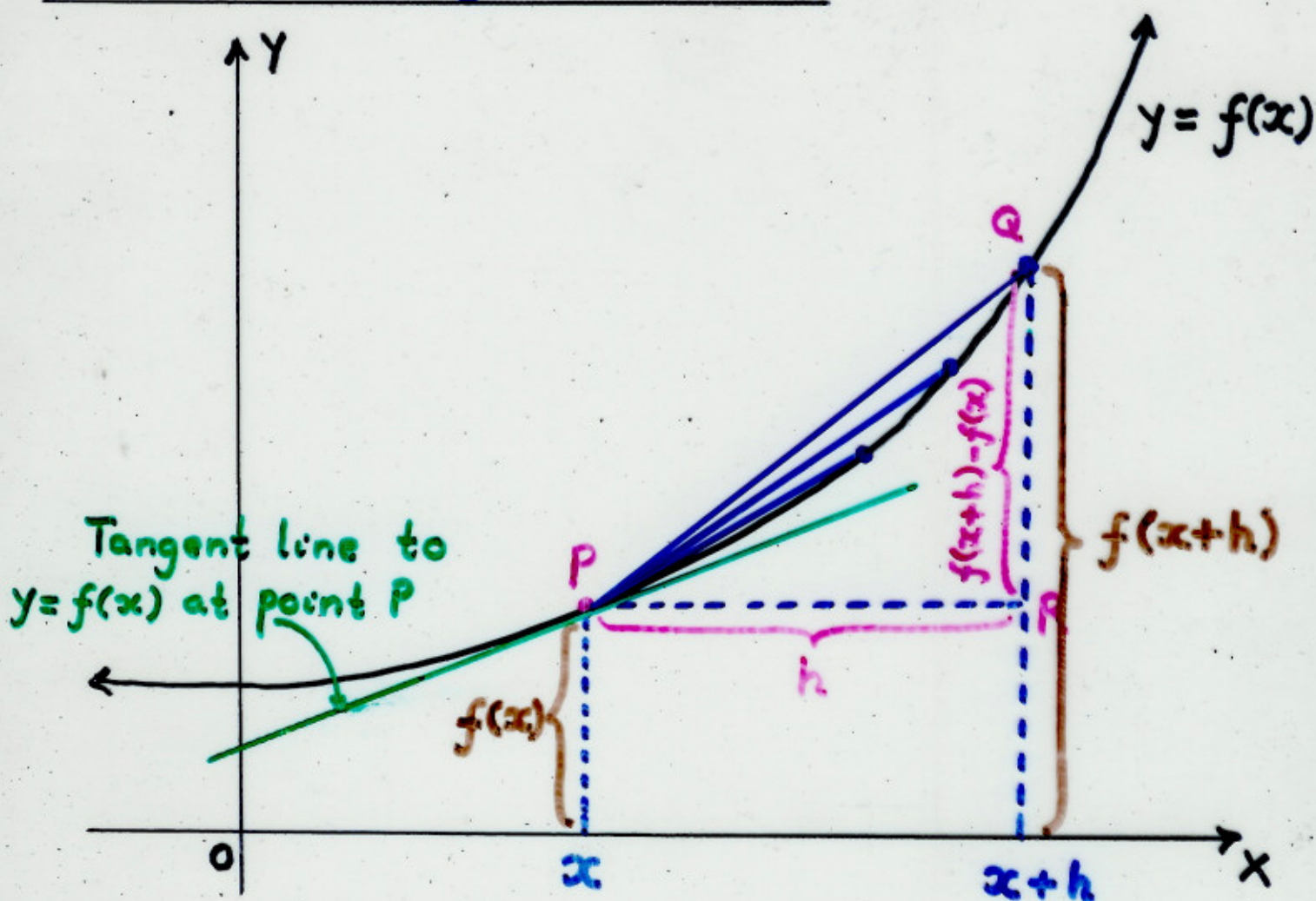


The Birth of Calculus



Diff. Quo = $\frac{f(x+h) - f(x)}{h}$ = The slope of the secant line PQ = The average rate of change of $f(x)$ from x to $x+h$

Now, make h smaller and smaller. So, as $h \rightarrow 0$ one gets:

$f'(x) = \lim_{h \rightarrow 0} \frac{f(x+h) - f(x)}{h}$ = The slope of the tangent line at P = The instantaneous rate of change of $f(x)$ at P

Algebraic Meaning of the Derivative

Geometric Meaning

Physical Meaning