NCEA Level 3 Calculus (Differentiation)
6. Tangent and Normal Lines (Homework)

Reading

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https://www.youtube.com/watch?v=6sNeE-mMYB8

Questions

1. Write a definition for the normal line to a curve f at a point (x_0, y_0).
2. Find the best linear approximation to the curve $y = \sqrt{\cos(x+\pi)} + \sin x - e^{2(\tan x)^2}$ at the point $(\pi, 0)$.
3. Find a function such that the normal line to the function at $(1, 0)$ has the equation $y = 3x - 3$.
4. Find a linear approximation to the curve $y = \sqrt[3]{1+3x}$ around $x = 0$, and determine an approximate value for $\sqrt[3]{1.03}$.