

IB Calculus Problem 003

Consider a function $f(x)$. The line L_1 with equation $y = 3x + 1$ is tangent to the graph of $f(x)$ when $x = 2$.

- A.
- i. Write down $f'(2)$.
 - ii Find $f(2)$.

Let $g(x) = f(x^2 + 1)$ and let P be the point on the graph of g where $x = 1$.

- B. Show that the graph of g has a slope of 6 at point P .

Let L_2 be the tangent to the graph of g at point P . L_1 intersects L_2 at point Q .

- C. Find the y-coordinate of Q .