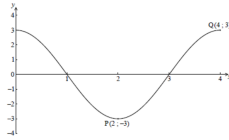


## IB Calculus Problem 4

The following figure shows the graph of  $f(x) = a \cos bx$ , for  $0 \leq x \leq 4$ .

The figure is not to scale.



There is a minimum point at  $P(2, -3)$  and a maximum point at  $Q(4, 3)$ .

- A.
- i. State the value of  $a$ .
  - ii Find the value of  $b$ .
- B. State the gradient of the curve at  $P$ .
- C. State the equation of the normal to the curve at  $P$ .