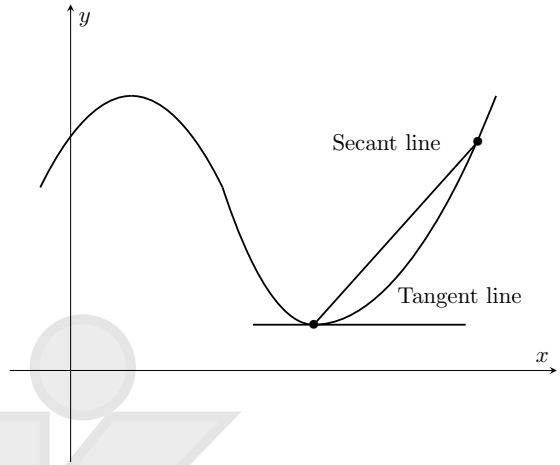
GRADIENT OF A SECANT:

A tangent is defined as the straight line that touches, and not intersects, a curve at a point.

A secant is defined as the straight line passing through two given points on the curve.



3.1 WORKED EXAMPLE

Explain why the secant line can be used to approximate the gradient.

3.2 WORKED EXAMPLE

On a Cartesian plane:

1. Draw the function $f(x) = x^2$.
2. Draw a tangent line at $x = 1$
3. Draw Secant Line A intersecting the parabola at $x = 1$ and $x = 3$. Approximate the gradient at x=1 by calculating the gradient of the secant line
4. Draw Secant Line B intersecting the parabola at $x = 1$ and $x = 2$. Approximate the gradient at $x = 1$ by calculating the gradient of Secant Line B
5. What do you notice about the gradients of Secant Line A and Secant Line B?