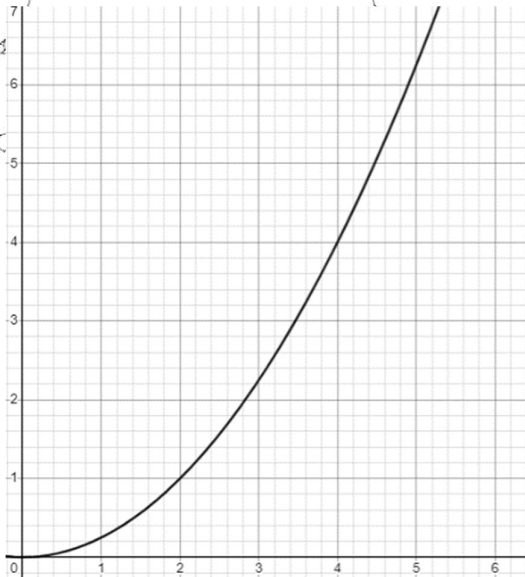


## (63) Differentiation (Gradients of Curves)

### WORKING AT D/E

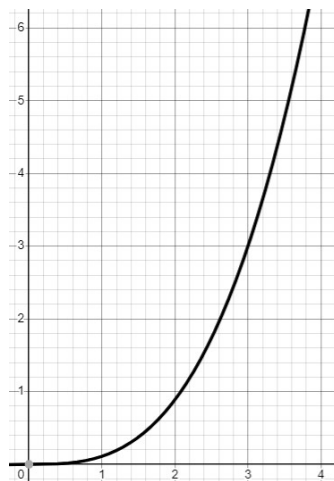
(1) The diagram below shows part of the curve of an equation.



- Draw a chord from the point with  $x$  coordinate 2 to the point with  $x$  coordinate 4.
- Hence show that the gradient of the chord is  $\frac{3}{2}$ .
- Draw a tangent to the curve at the point with  $x$  coordinate 4.
- Find an estimate for the gradient of the tangent at the point with  $x$  coordinate 4.

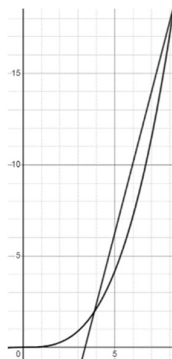
### WORKING AT B/C

(1) The diagram below shows part of the curve of an equation.



Estimate the gradient of the tangent to the curve at the point with coordinates (3,3)

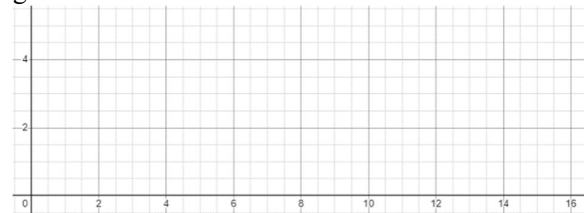
(2) Alan draws a straight line to estimate the gradient of the curve below at the point (4,2).



Explain what he could do to get a better estimate to the gradient.

### WORKING AT A\*/A

(1)(a) Plot the graph of  $y = \sqrt{x}$ ,  $0 \leq x \leq 16$  on a grid like the one shown below.



(b) Explain what happens to the gradient of the curve as  $x \rightarrow \infty$ .

(2) On the diagram below, find a point where the curve has a gradient of  $\sim 1$

