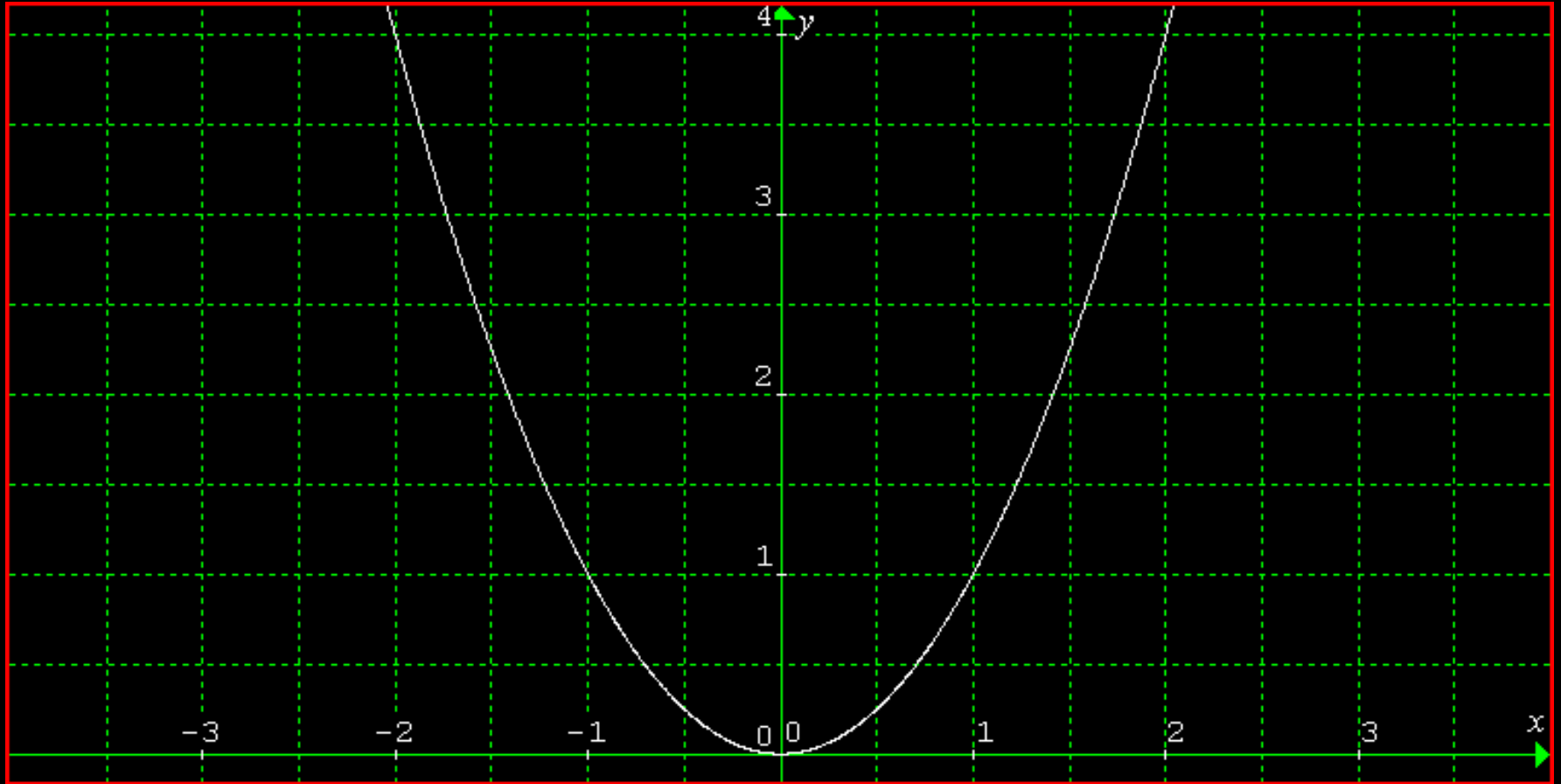


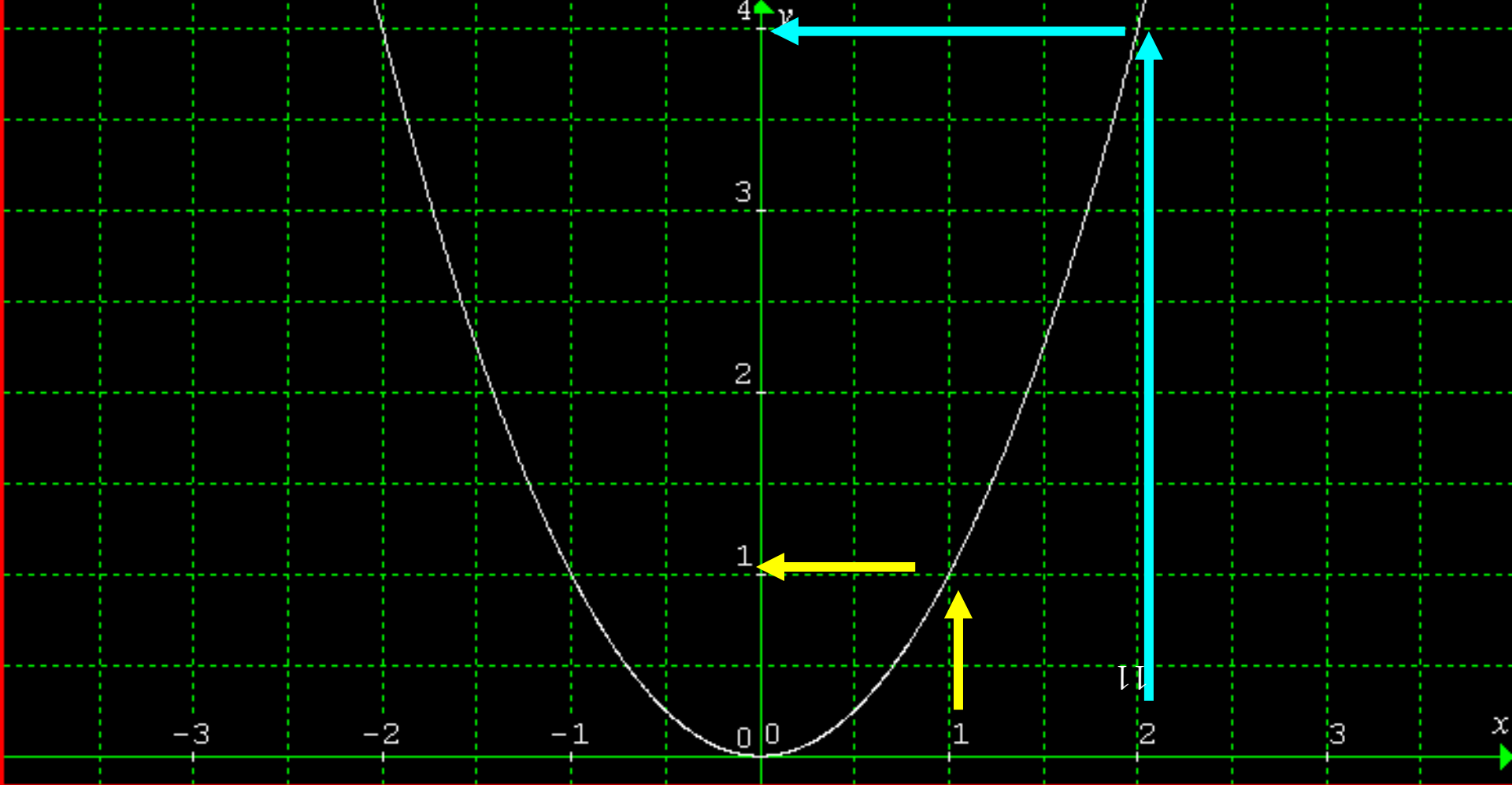


**DIFFERENTIAL
CALCULUS**

AVERAGE GRADIENT



Find the average gradient between $x = 1$ & $x = 2$



If $x = 1$, $f(1) = 1$.

When $x = 2$, $f(2) = 4$

$$\text{Average gradient} = \frac{\Delta y}{\Delta x}$$

$$f(x) = x^2$$

$$f(2) = 4$$

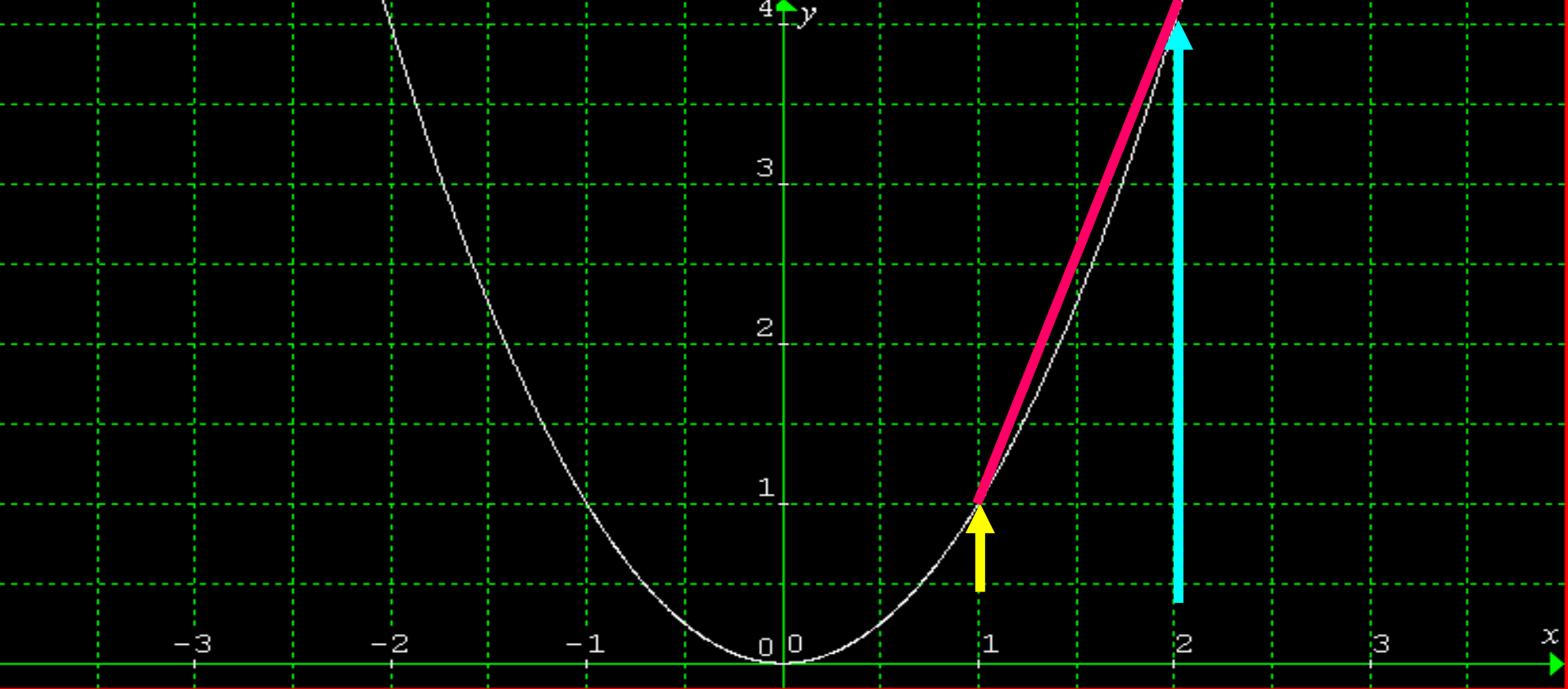
$$f(1) = 1$$

$$= \frac{f(x_2) - f(x_1)}{x_2 - x_1}$$

$$= \frac{f(2) - f(1)}{2 - 1}$$

$$= \frac{4 - 1}{2 - 1}$$

$$= 3$$



Average Gradient:

- Assumes a straight line is drawn between two points and the average gradient of that straight line is found
- E.g. Average gradient between $x = 1$ and $x = 2$ is 3
- Doesn't tell us what the gradient is at a particular point on a curve