

Question

Determine the turning point for the curve $y = 1 + 12x - x^3$.
Hence, determine the nature of the turning point.

DRAG & DROP

N **a** **t**

$$\frac{dy}{dx} = 12 - 3x^2$$

maximum

$$12 > 0$$

Substitute x in
 $y = 1 + 12x - x^3$

$$y = 1 + 12x - x^3$$

$$\frac{dy}{dx} = 0$$

$$\frac{d^2y}{dx^2} = -6x$$

$$-12 < 0$$

$$12 - 3x^2 = 0$$

minimum

D **i**

C **o**

Coordinate x

x_1

→

x_2

→

Coordinate y

y_1

→

y_2

→

Coordinate
Turning point →

At point

Nature is

because

At point

Nature is

because

DRAG &
DROP

$$y = 1 + 12x - x^3$$

maximum

minimum

$(2, 17)$

$(-2, -15)$

