

Question

DRAG & DROP

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

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

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| <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <div style="border: 1px solid black; width: 100%; height: 30px;"></div> | <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <p>Coordinate x</p> <p>x_1 → <input style="width: 40px; height: 25px;" type="text"/> x_2 → <input style="width: 40px; height: 25px;" type="text"/></p> <p>Coordinate y</p> <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <p>y_1 → <input style="width: 40px; height: 25px;" type="text"/> y_2 → <input style="width: 40px; height: 25px;" type="text"/></p> <p>Coordinate Turning point → <input style="width: 100%; height: 25px;" type="text"/> <input style="width: 100%; height: 25px;" type="text"/></p> | <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <p>At point <input style="width: 100%; height: 25px;" type="text"/></p> <p>Nature is <input style="width: 100%; height: 25px;" type="text"/></p> <p>because <input style="width: 100%; height: 25px;" type="text"/></p> <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> <p>At point <input style="width: 100%; height: 25px;" type="text"/></p> <p>Nature is <input style="width: 100%; height: 25px;" type="text"/></p> <p>because <input style="width: 100%; height: 25px;" type="text"/></p> <div style="border: 1px solid black; width: 100%; height: 30px; margin-bottom: 10px;"></div> |

DRAG & DROP

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

maximum

minimum

(2, 17)

(-2, -15)

