

11C Maxima & Minima

1. A child is playing with a yo-yo. The yo-yo leaves the child's hand at time $t = 0$ and travels vertically in a straight line before returning to the child's hand. The distance in metres, s of the yo-yo from the child's hand after time t seconds is given by:

$$s = 0.6t + 0.4t^2 - 0.2t^3, \quad 0 \leq t \leq 3$$

- a) Justify the restriction $0 \leq t \leq 3$

b) Find the maximum distance of the yo-yo from the child's hand, to 3sf