**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:

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

1. Justify the restriction $0\leq t\leq 3 $
2. Find the maximum distance of the yo-yo from the child’s hand, to 3sf