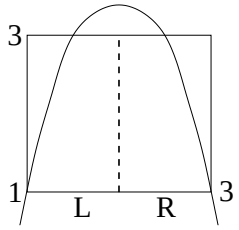
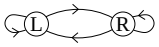
Question
Sketch a graph of $f(x) = -2x^2 + 8x - 5$, and find a partition of two intervals from which it can be deduced that $f : \mathbf{R} \longrightarrow \mathbf{R}$ has periodic points of every period.

Answer
Maximum of $-2x^2 + 3x - 5$ occurs where $-4x + 8 = 0$, i.e. $x = 2$: then $y = 3$. When $x = 3$ we have $y = 1$; the other solution to $y = 1$ is: $x = 1$. Hence f maps the interval [1,3] to itself, with max(=3) at $x = 2$.



Partition $\{L, R\}$ has incidence graph 

and so we have periodic orbits of every period.