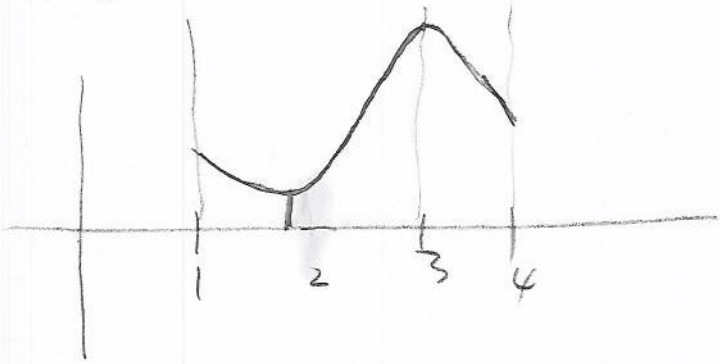
Mathematics 122

Quiz #24 Name: Key

You must show your work to get full credit.

(1) Draw the graph of a function defined on $1 \leq x \leq 4$ that has a global minimum at $x = 2$, a global maximum at $x = 3$ and no other critical points.

2 pts



3 pts

(2) For some positive constant the change, T, in a patient's temperature when given a dosage, D, of a drug is

$$T = \left(C - \frac{D}{2}\right) D.$$

What dosage maximizes the temperature change?

$T = CD - \frac{D^2}{2}$ $D =$ C

To find the critical point compute

$\frac{dT}{dD} = C - \frac{2D}{2} = C - D$

setting $\frac{dT}{dD} = 0$ gives $C - D = 0$, that is $D = C$.

so C is a maximizer.