

# Math122 College Algebra

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# 3.3

## Local Maximum

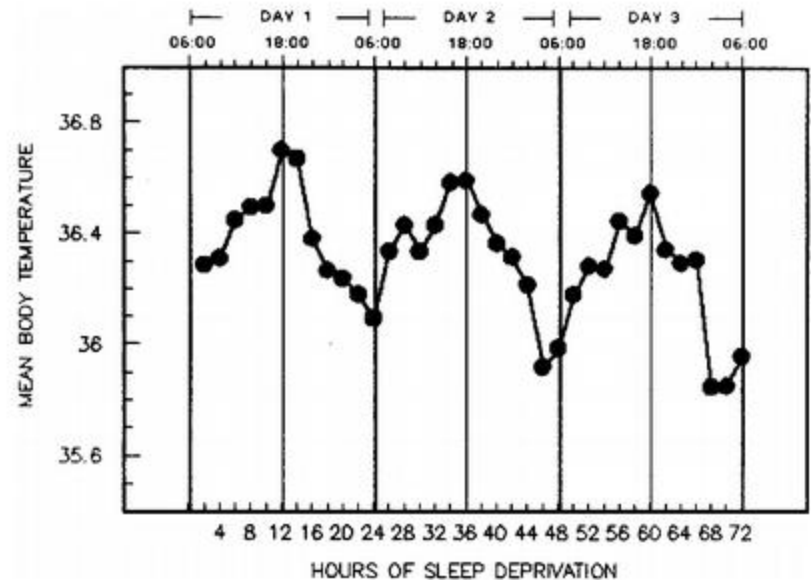
- The value  $f(a)$  is a local maximum of  $f$  if  $f(a) \geq f(x)$  when  $x$  is near  $a$

IMPORTANT: This means  $f(a) \geq f(x)$  for ALL  $x$  in some open interval containing  $a$

- If a function has a local maximum, we say  $f$  has a local maximum at  $x = a$

# Problem

- For the following graph, explain why the point at hour 28 is a local maximum but the point at hour 50 is not a local maximum.



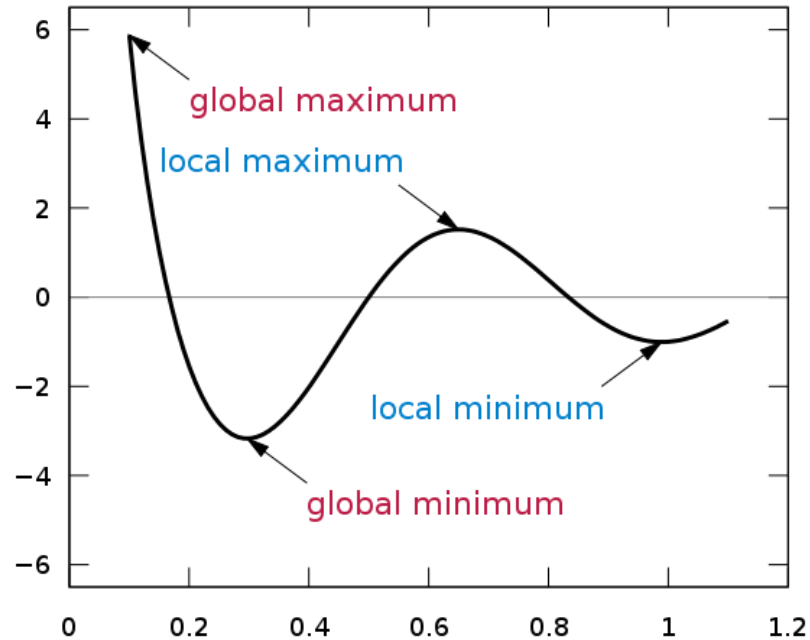
# Local Minimum

- The value  $f(a)$  is a local minimum of  $f$  if  $f(a) \leq f(x)$  when  $x$  is near  $a$

IMPORTANT: This means  $f(a) \leq f(x)$  for ALL  $x$  in some open interval containing  $a$

- If a function has a local minimum, we say  $f$  has a local minimum at  $x = a$

# Minimums & Maximums



[http://en.wikipedia.org/wiki/File:Extrema\\_example\\_original.svg](http://en.wikipedia.org/wiki/File:Extrema_example_original.svg)