



Maxima&Minima - Tutoring Sheet #14

1. Find the maxima and the minima of the following functions:

a. x^2

b. $2x^4 + 4$

c. $x^3 - x$

d. $x^2 + 2x + 1$

e. $2 + 4x - x^2$

f. $2x^3 - 15x^2 + 36x + 4$

2. Find the maxima and the minima of the following functions:

a. $2x^2 + 4$

b. $5 - 3x^2$

c. $2x^3 - 9x^2 - 24x + 10$

d. $4\sqrt{x} - x$

e. $\frac{3x}{x^2 + 1}$

3. Find all the local maxima and minima of the following functions, state whether each point is a maximum or minimum and find the value of the function at each point:

a. $y = x^2 - 4x + 2$

b. $y = x^3 - 3x^2$

c. $x + \frac{1}{x}$

c. $y = x^5$

6. Find the maximum value of the following functions (show it's maximum):

a. $f(x) = (1+x)e^{\frac{-x}{2}}$

b. $f(x) = x - x \ln x$

7. Find the minimum value of the following functions (show it's minimum) :

a. $f(x) = e^{\sqrt{x}} - 2\sqrt{x}$

b. $f(x) = x^2 - \ln(\sqrt{2} x)$