Absolute Extrema

1. Find the absolute maximum value and the absolute minimum value, if any, of the following function.

$g(x) = x^2 - 2x - 3$ **on** $[-1, 6]$

2. Find the absolute maximum value and the absolute minimum value, if any, of the following function.

$g(t) = t/(t-1)$ **on** $[3, 5]$

3. Find the absolute maximum value and the absolute minimum value, if any, of the following function.

$g(x) = 1/(x+1)$ **on** $(0, \infty)$

4. An apartment complex has 100 units. The monthly profit (in dollars) realized from renting out x apartments is given by the following function.

$P(x) = -10x^2 + 1600x - 43000$

(a) How many units should be rented out to Maximize monthly rental profit?

(b) What is the Maximum monthly profit realizable?

5. The quantity demanded each month for a certain classical music recording is related to the price/compact disc. The following equation p denotes the unit price in dollars and x is the number of discs demanded, relates the demand to the price. The total monthly cost (in dollars) for pressing and packaging x copies of this classical recording is given as by $C(x)$. To maximize its profits, how many copies should a company produce each month? (Give your answer correct to the nearest whole disc.) Hint: The revenue is $R(x) = px$, and the profit is $P(x) = R(x) - C(x)$.

$p = -0.00035x + 6$ **where** $0 \leq x \leq 12000$

$C(x) = 600 + 2x - 0.00001x^2$ **where** $0 \leq x \leq 20000$