Class Discussion

Unit 1 Topic 3 Part 2 Graph of a function

Definition of some vocabulary:

Relative minimum:

If $f(a)$ is the relative minimum of $f(x)$ in $(x_1, x_2)$ , then $f(a) \le f(x) \quad \forall x \in (x_1, x_2)$ .

Relative maximum:

If $f(a)$ is the relative maximum of $f(x)$ in $(x_1, x_2)$ , then $f(a) \ge f(x) \quad \forall x \in (x_1, x_2)$ .

Ex1 Given $f(x) = -6x + x^2$ , $x \in (0, 7)$ ,

(1) Find the range of the function

(2) Find the relative minimum

Definition:

Increasing, decreasing and constant of a function

- A function $f$ is increasing on an interval if $x_1 < x_2 \Rightarrow f(x_1) < f(x_2)$
- A function $f$ is decreasing on an interval if $x_1 < x_2 \Rightarrow f(x_1) > f(x_2)$
- A function $f$ is constant on an interval if $f(x_1) = f(x_2)$ for any $x_1, x_2$ on that interval.

Ex 2. Let $f(x) = |x-1| + |x-3|$ , Find the interval when $f(x)$ is increasing, decreasing, or constant.