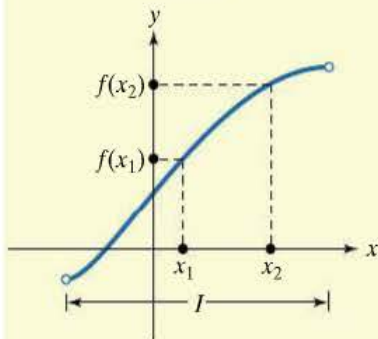


Section 2.2 More on Functions and Their Graphs

Increasing, Decreasing, and Constant Functions

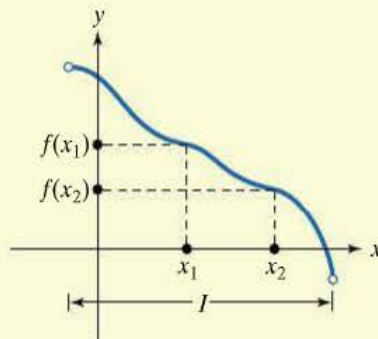
1. A function is increasing on an open interval, I , if $f(x_1) < f(x_2)$ whenever $x_1 < x_2$ and x_1 and x_2 in the interval.
2. A function is decreasing on an open interval, I , if $f(x_1) > f(x_2)$ whenever $x_1 < x_2$ and x_1 and x_2 in the interval.
3. A function is constant on an open interval, I , if $f(x_1) = f(x_2)$ for any x_1 and x_2 in the interval.

Increasing



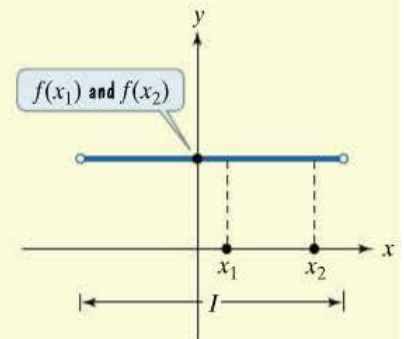
- (1)** For $x_1 < x_2$ in I ,
 $f(x_1) < f(x_2)$;
 f is increasing on I .

Decreasing



- (2)** For $x_1 < x_2$ in I ,
 $f(x_1) > f(x_2)$;
 f is decreasing on I .

Constant



- (3)** For x_1 and x_2 in I ,
 $f(x_1) = f(x_2)$;
 f is constant on I .

Example 1: Use the graph to determine, a) intervals on which the function is increasing, if any b) intervals on which the function is decreasing, if any c) intervals on which the function is constant, if any.

