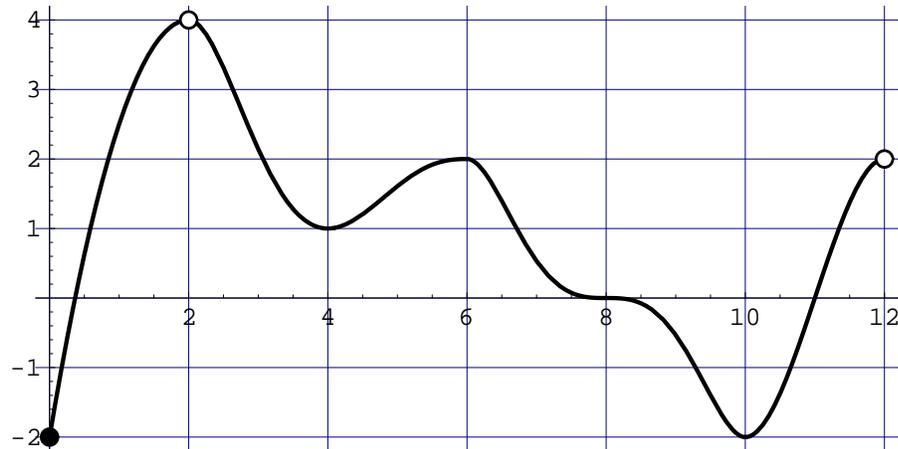


1. The graph of a function f is given below.



At what x -value(s) does f have a...

- (a) local maximum?
 - (b) local minimum?
 - (c) absolute maximum?
 - (d) absolute minimum?
2. Sketch the graph of a single function f with domain $(-\infty, \infty)$ that satisfies *all* of the following conditions.
- (a) f has local maxima at $x = 0$ and $x = 4$
 - (b) f has a local minimum at $x = 2$
 - (c) f has an absolute maximum at $x = 0$
 - (d) f has no absolute minimum

3. Let $f(x) = 60x^2 - 28x^3 + 3x^4$.

(a) Find $f'(x)$.

(b) Use f' to find the intervals on which f increases and the intervals on which f decreases.

(c) Use the First Derivative Test to determine the x -values at which f has local minima and maxima.

(d) Use your answers to parts (b) and (c) to sketch the graph of f . Plot and label the points that correspond to the local extrema of f .

(e) At what x -values does f have absolute maxima and minima on the interval $[-2, 6]$? What are the corresponding absolute maximum and minimum values?