

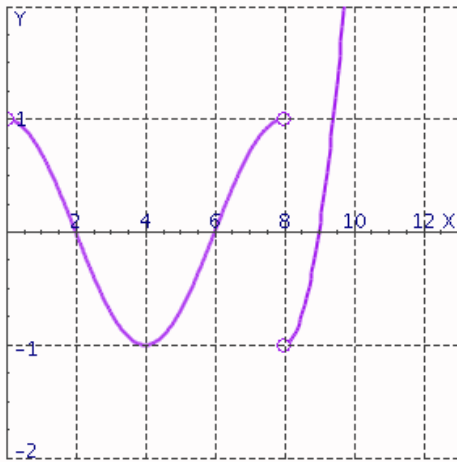
AP Calculus AB Partner Project

If you are absent on November 17th then, you must do this project by yourself.

Names: _____

1. Explain fully.

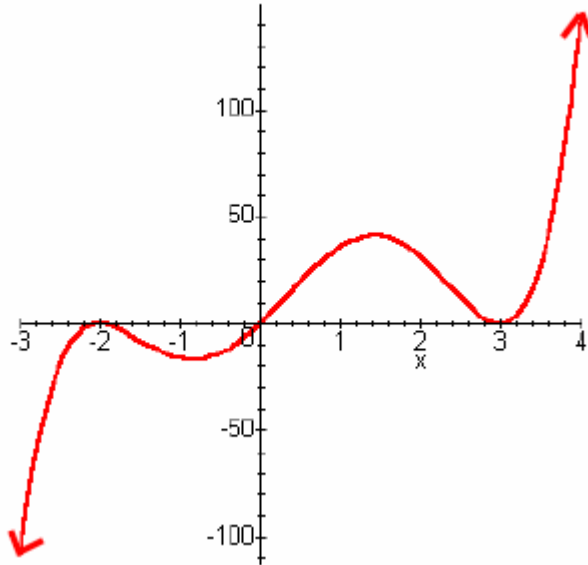
The graph of the derivative $f'(x)$ of a continuous function f is shown. At what values of x does f have a local maximum or minimum?



GRAPH of
 $f'(x)$

2. Let $f''(x)$ be the second derivative of a function $y = f(x)$. If $f''(x) = (x-2)^2(x+1)$, then where does the graph of $f(x)$ have a point of inflection. Explain your answer fully.

3. The graph of $f'(x)$ is shown below. Find the intervals where the graph of $f(x)$ is increasing or decreasing AND find all relative extrema.



$$y = f'(x)$$

4. What value of c in the open interval $(0, 4)$ satisfied the Mean Value Theorem for $f(x) = \sqrt{3x+4}$?

5. The function $f(x)$ is defined as $f(x) = -2(x+2)(x+1)^2$ on the open interval $(-3, 3)$.

(a) Locate the zeros of $f(x)$

(b) Using the values from part (a), find the value of c that satisfied Rolle's Theorem.

(c) Determine the coordinates of the relative extrema of $f(x)$ in the open interval $(-3, 3)$

(d) Find the interval(s) for which $f(x)$ is concave down in the open interval $(-3, 3)$

(e) Find the value of c which satisfied the Mean Value Theorem for the closed interval $[-3, 3]$