

1. Sketch the graph of

$$f(x) = -2x^3 + 3x^2 + 12x - 3.$$

Include the local maxima and minima, the points of inflection, the intervals on which the function is increasing and decreasing, and the intervals on which it is concave up and concave down.

2. Let g be a function. Below is a sketch of the graph of g' .

(a) Find and classify (as local max, local min, or neither) the critical points of g .

(b) Can you find the inflection points on g ? If so, where are they?

3. Let h be a function. Below is a sketch of the graph of h'' .

(a) Can we determine what the critical points of h are by looking at this graph? If so, determine them and classify them (as local max, local min or neither). Can we determine the inflection points of h based on this graph? If so, what are they?

(b) Suppose we know that $h'(-2) = 0$ and $h'(3) = 0$. Does h have a local max or a local min at $x = -2$? How about at $x = 3$?