

1. What does it mean to say that  $a$  is a *stationary point* for a function  $f$ ?

2. Fact: if  $f'(x) < 0$  on an interval  $(s, t)$ , then on that interval  $f(x)$  is .

3. If  $a$  is a stationary point of  $f$ , then  $a$  is a local maximum point if  $f'$  changes from

to  at  $a$ .

(Possible answers might be “CU to CD” or “CD to CU” or “positive to negative” or “decreasing to increasing”, etc).

4. An inflection point occurs at  $p$  if which function changes from increasing to decreasing at  $a$ :  $f$ ,  $f'$ , or  $f''$ ?

5. Consider the following graph of the *derivative* of function  $g(x)$ ; so you are given the graph of  $g'(x)$  here. Answer the following questions.

- (1) On what interval(s) is  $g(x)$  decreasing?
- (2) What are the stationary points of  $g(x)$ ?
- (3) On what interval(s) is  $g(x)$  concave up?
- (4) Does  $g(x)$  have any local maximum points or minimum points? If so, list their  $x$ -coordinates and classify them (local min or local max).
- (5) Find all the inflection points of  $g(x)$ .
- (6) Make a rough sketch of  $g$  on the bottom graph starting at the dot given. Make sure it increases/decreases and is CD/CU where it should be; but you do not need to worry about the location of the  $x$  axis.

