1. What does it mean to say that a is a *stationary point* for a function f? $f'(a) = 0$ (see note 1 below)

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

3. If a is a stationary point of f, then a is a local minimum point if f' changes from NEGATIVE to POSITIVE at a.

(motivation: negative slopes, positive slopes)

(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''? 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? if $g'(x) < 0$ on I then $g(x)$ is decreasing there so: $(2,5)$ and $(5,7)$ (see note 2 below)

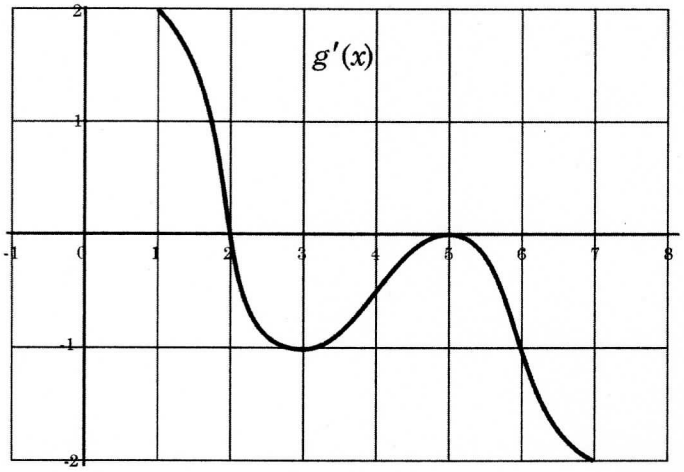
(2) What are the stationary points of $g(x)$? $g'(a) = 0$ at $a = 2$ and $a = 5$

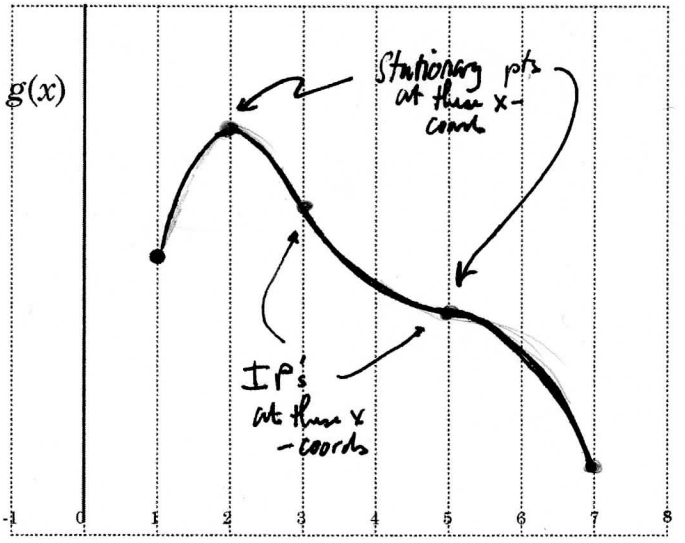
(3) On what interval(s) is $g(x)$ concave down? if g' is decreasing on I, then g is CD there, so $(1,3)$ and $(5,7)$

(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). at $a = 2$, g' changes from POS to NEG, so g changes from incr to decr $\Rightarrow$ there's a local MAX at $a = 2$.

(5) Find all the inflection points of $g(x)$. at each of $a = 3$ and $a = 5$, g' changes from decr to incr OR incr to decr so g changes from CD to CU OR CU to CD; in either case the point is an I.P.

(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.





note 1: if you want to talk about tangent lines, you need to say: "the slope of the line tangent to the graph of f at $(a, f(a))$ is 0"

note 2: will accept $(2,7)$ also.