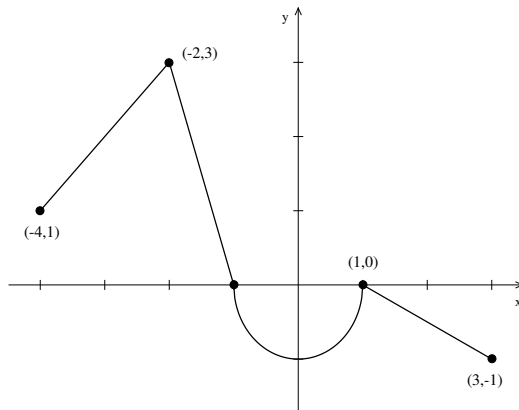


You *MAY NOT* use a calculator.



Graph of  $f$

Let  $f$  be the continuous function defined on  $[-4, 3]$  whose graph, consisting of three line segments and a semicircle centered at the origin, is given above. Let  $g$  be the function given by  $g(x) = \int_1^x f(t) dt$ .

(a) Find the values of  $g(2)$  and  $g(-2)$ .

---

(b) For each of  $g'(-3)$  and  $g''(-3)$ , find the value or state that it does not exist.

- (c) Find the  $x$ -coordinate of each point at which the graph of  $g$  has a horizontal tangent line. For each of these points, determine whether  $g$  has a relative minimum, relative maximum, or neither a minimum nor a maximum at the point. Justify your answers.

- 
- (d) For  $-4 < x < 3$ , find all values of  $x$  for which the graph of  $g$  has a point of inflection. Explain your reasoning.