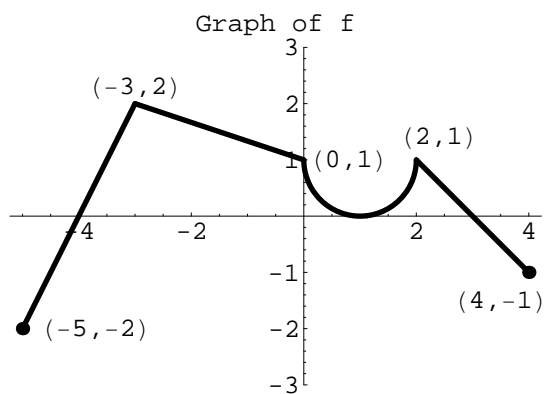*You MAY NOT use your calculators.*

Graph of f

The graph of the function f shown above consists of a semicircle and three line segments. Let g be the function given by

$$g(x) = \int_{-3}^{x} f(t)\,dt.$$

(a) Find $g(0)$ and $g'(0)$.

(b) Find all values of x in the open interval (-5,4) at which g attains a relative maximum. Justify your answer.

(c) Find the absolute minimum value of g on the closed interval $[-5, 4]$. Justify your answer.

(d) Find all values of x in the open interval (-5,4) at which the graph of g has a point of inflection.