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

$$g(x) = \int_{-5}^{x} f(t) \, dt$$

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.

D) Find all values of $x$ in the open interval $(-5, 4)$ at which the graph of $g$ has a point of inflection.
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No Calculator

11. The graph of a function $f$ consists of a semicircle and two line segments as shown. Let $g$ be the function given by $g(x) = \int_0^x f(t)\,dt$

a) Find $g(3)$

b) Find all values of $x$ on the open interval $(-2, 5)$ at which $g$ has a relative maximum. Justify your answer

c) Write an equation for the line tangent to the graph of $g$ at $x = 3$

d) Find the $x$-coordinate of each point of inflection of the graph of $g$ on the open interval $(-2, 5)$. Justify your answer.
The graph of a differentiable function \( f \) on the closed interval \([1, 7]\) is shown.

Let \( h(x) = \int_1^x f(t) \, dt \) for \( 1 \leq x \leq 7 \).

a) Find \( h(1) \)

b) Find \( h'(4) \)

c) On what interval or intervals is the graph of \( h \) concave upward? Justify your answer.

d) Find the value of \( x \) at which \( h \) has its minimum on the closed interval \([1, 7]\). Justify your answer.