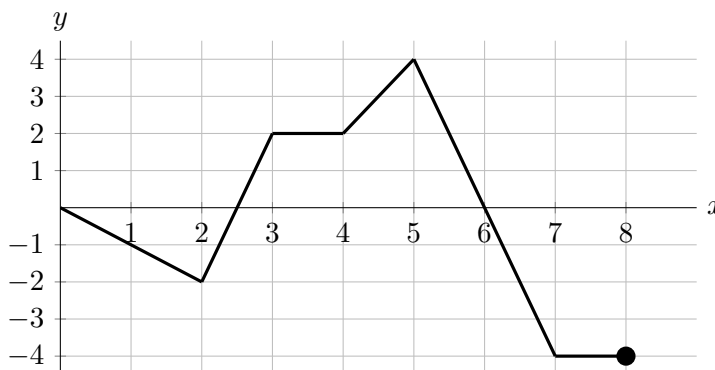**2.** [16 points] Part of the graph of $g(x)$, a piecewise-linear <u>odd</u> function defined on $[-8, 8]$, is given below.

a. [6 points] Let $A(x) = \int_4^{2x} g(t)\, dt$. Find the following values. If the value does not exist, write "DNE". You do not need to show work, but partial credit may be awarded for correct work.

(i) $A(4) =$ __**-1**__   (ii) $A(1) =$ __**-2**__   (iii) $A'(2.5) =$ __**8**__

b. [10 points] Let $G(x) = \int_2^x g(t)\, dt$ for $-4 \leq x \leq 4$. Carefully sketch the graph of $G(x)$ below. Make sure your sketch clearly displays:

- the values of $G(x)$ at integer values of x;
- where $G(x)$ is and is not differentiable;
- where $G(x)$ is increasing or decreasing;
- the concavity of $G(x)$.