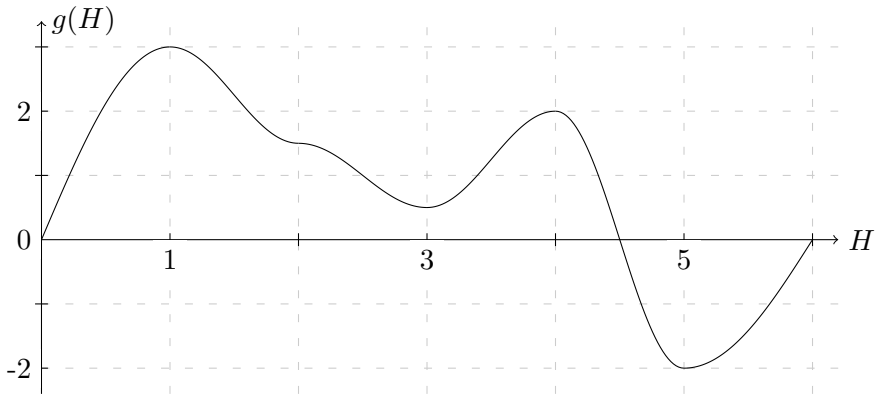
6. [10 points] After receiving a termination notice, The Intern has begun to read up on the global job market. A dubious pop-economics book he is reading claims that the rate at which interns are hired or terminated in a large company is purely a function of the number of interns at the company. Specifically, it states that

$$\frac{dH}{dt} = g'(H),$$

where $H(t)$ gives the number of interns at a company, in thousands, after t days, and $g(H)$ is a differentiable function. A graph of $g(H)$ (**not** $g'(H)$) is given in the book:



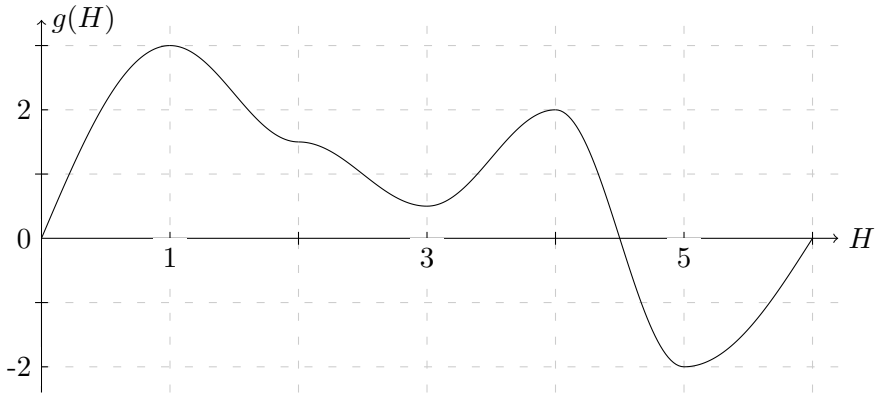
a. [2 points] What are the units of $g'(H)$?

b. [3 points] Are there any **stable** equilibrium solutions of the differential equation? If so, what are they?

6. (continued). Recall that the number of interns in thousands $H(t)$ satisfies

$$\frac{dH}{dt} = g'(H),$$

where a graph of $g(H)$ (**not** $g'(H)$) is given below:



c. [2 points] If a company starts with 3,500 interns, what will happen to the number of interns in the long run?

d. [1 point] Estimate the number of interns at which the number of interns is decreasing the fastest.

e. [2 points] Suppose that a company begins with 5,500 interns. If you used Euler's method to estimate how many interns there will be 5 days from now, would you expect an underestimate or an overestimate? Justify your answer briefly.