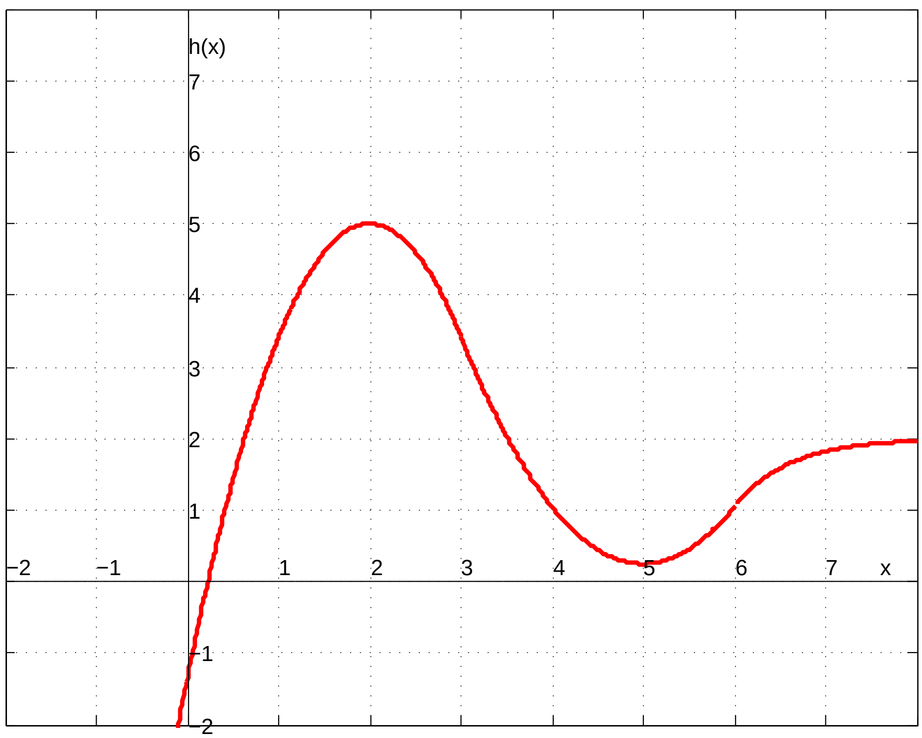
7. (11 points) (a) On the axes below sketch a graph of a single, continuous differentiable function h that satisfies all of the following properties

- $h(2) = 5$
- $h''(x) < 0$ for $x < 3$
- $h'(5) = 0$
- $\lim_{x\to\infty} h(x) = 2$
- h' is positive for $x < 2$ and $x > 5$
- h is decreasing for $2 < x < 5$



(b) What is $\lim_{x\to-\infty} h(x)$? $-\infty$

(c) If $h'(0) = 2$, is it possible that $h'(-1) = 4$? Explain.

Yes, it is possible that $h'(-1) = 4$. We know is that h is increasing and concave down for $x < 0$, so we only need $h'(-1) > h'(0)$.