

4. [15 points] The H1N1 flu virus arrived in the US last spring. Data from the CDC for the region including Michigan, Minnesota, Illinois, Indiana, Wisconsin, and Ohio is shown in the table below.  $H(t)$  denotes the cumulative number of cases of H1N1 flu in this region  $t$  weeks after August 15, 2009.

$t$	0	1	2	3	4	5	6
$H(t)$	8266	8314	8365	8482	8632	8903	9165

- a. [2 points] Evaluate and interpret  $H(5)$ .
- b. [2 points] Why might it be reasonable to assume that  $H$  is invertible for  $0 \leq t \leq 6$ ?
- c. [3 points] Assuming  $H$  is invertible, give the practical meaning of  $H^{-1}(8500)$ .
- d. [3 points] Estimate  $H'(5)$ .
- e. [5 points] Assuming  $H$  is invertible, estimate and give the practical meaning of  $(H^{-1})'(8500)$ .