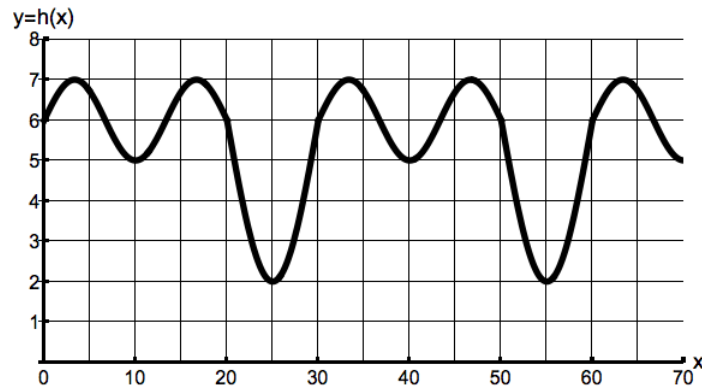


6. [12 points]

- a. [6 points] Scientists have been recording the number of cases of an infectious disease. They have found that the number of cases reported changes periodically over time, with a period less than 70 weeks. Let $h(x)$ be the average number of cases (in thousands) reported x weeks after the first week of January 2014. The graph of $y = h(x)$ is shown below.



Find the period, amplitude and the equation of the midline of the function $y = h(x)$.

Solution: Period = 30 Amplitude = 2.5 Midline: $y = 4.5$

- b. [3 points] Let $f(x)$ be a periodic function, with period equal to 7, whose domain is all the real numbers. Some of the values of the function $f(x)$ are shown below.

x	-4	-2	0	2
$f(x)$	1	4	7	10

Find the value of the following values of $f(x)$. Write “NP” if it is not possible to determine the value of the function with the information given to you.

Solution:
 $f(3) = 1$ $f(8) = \text{NP}$ $f(-5) = 10$

- c. [3 points] Some of the values of an odd function $g(x)$ are shown below

x	-6	-1	3	4
$g(x)$	1	-5	7	-10

Find the value of the following values of $g(x)$ assuming that the function is defined for all real numbers. Write “NP” if it is not possible to determine the value of the function with the information given to you.

Solution:
 $g(-3) = -7$ $g(0) = 0$ $g(5) = \text{NP}$