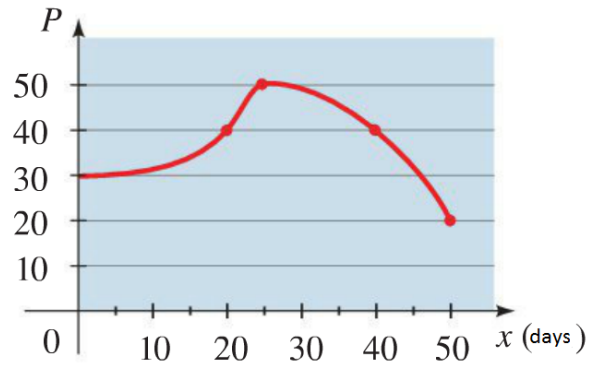


Name: _____ / 25

There are 25 points possible on this quiz. No aids (book, calculator, etc.) are permitted. Show all work for full credit.

1. [5 points] The graph below shows the population P of mice in a particular garden over the course of 50 days. Give answers to the following in correct units.



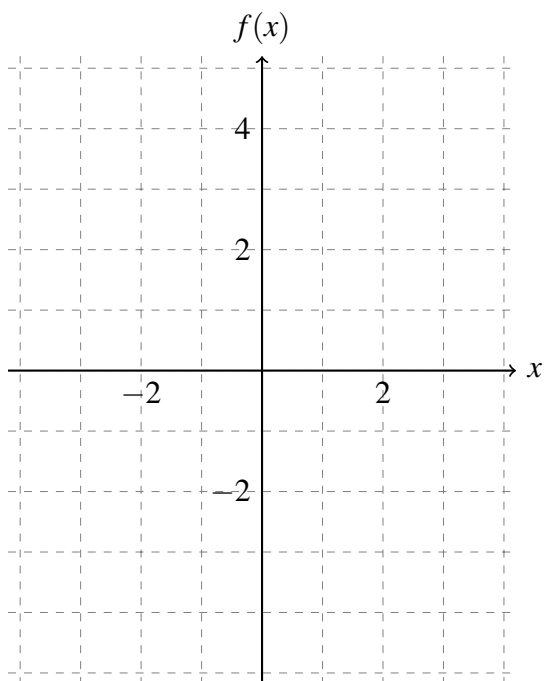
- Find the number of mice on days 25 and 40.
 - Find the average rate of change of the population from $x = 25$ to $x = 40$.
 - Find the average rate of change of the population during the entire period.
2. [6 points] Compute the following limit. Justify your answer with a sentence or two.

$$\lim_{x \rightarrow 2^+} \frac{(x-4)^2}{2-x} = \boxed{}$$

3. [5 points] On the axes below, sketch the graph of the function

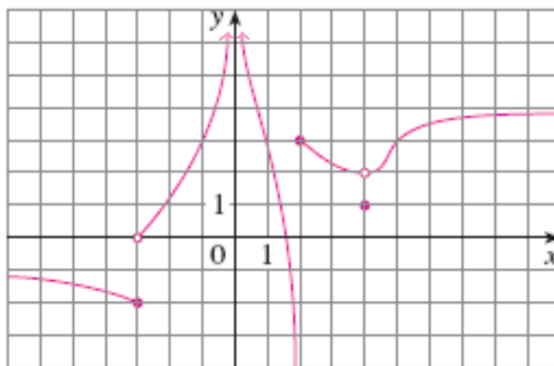
$$f(x) = \begin{cases} -x^2 & x < 0 \\ 2 & 0 \leq x < 2 \\ 3-x & x \geq 2. \end{cases}$$

Then compute the requested values in the table if they exist.



	State the value if it exists. If it does not exist state why.
$f(2) =$	
$\lim_{x \rightarrow 2^-} f(x) =$	
$\lim_{x \rightarrow 2} f(x) =$	

4. [9 points] Use the graph of the function of $f(x)$ to answer the following questions.



a. $\lim_{x \rightarrow -3^-} f(x) =$ _____

b. $\lim_{x \rightarrow -3^+} f(x) =$ _____

c. $\lim_{x \rightarrow -3} f(x) =$ _____

d. $f(-1) =$ _____

e. $f(4) =$ _____

f. $f(-3) =$ _____

g. $\lim_{x \rightarrow 4} f(x) =$ _____

h. $\lim_{x \rightarrow 2^-} f(x) =$ _____

i. $\lim_{x \rightarrow -1} f(x) =$ _____