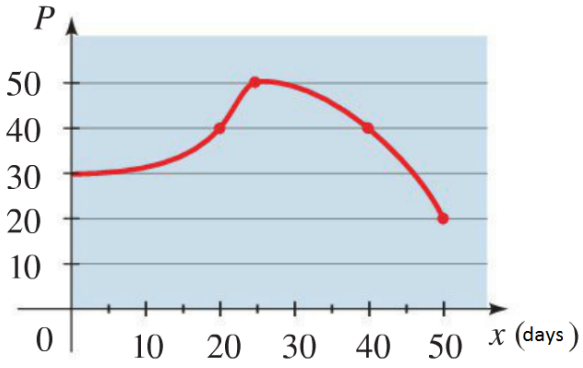
Name: _____ _____ / 25

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.



a. Find the number of mice on days 25 and 40.

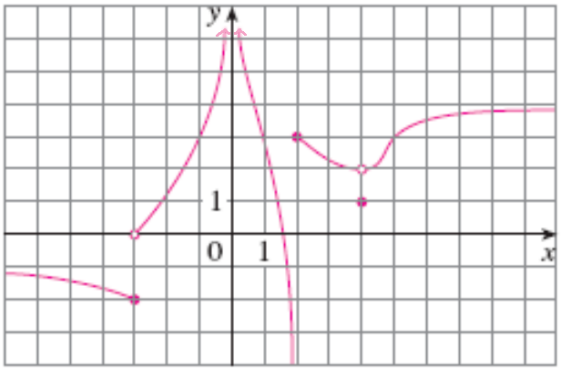
b. Find the average rate of change of the population from $x = 25$ to $x = 40$.

c. 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.

$$\lim_{x \to 1^+} \frac{(x-3)^2}{1-x} = \boxed{}$$

3. [9 points] Use the graph of the function of $f(x)$ to answer the following questions.



a. $\lim_{x\to 4} f(x) =$ _____ **b.** $\lim_{x\to 2^-} f(x) =$ _____ **c.** $\lim_{x\to -1} f(x) =$ _____

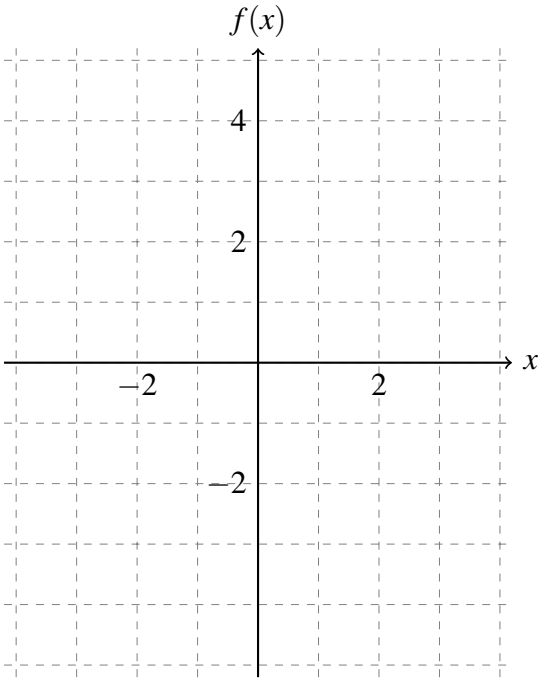
d. $f(-1) =$ _____ **e.** $f(4) =$ _____ **f.** $f(-3) =$ _____

g. $\lim_{x\to -3^-} f(x) =$ _____ **h.** $\lim_{x\to -3^+} f(x) =$ _____ **i.** $\lim_{x\to -3} f(x) =$ _____

4. [5 points] On the axes below, sketch the graph of the function

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

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



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