Name: _____ _____ **/ 25**

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

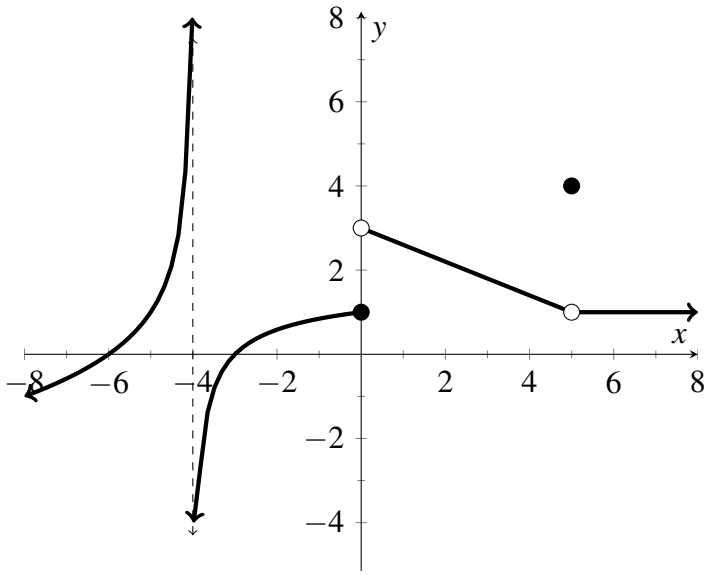
1. [4 points] A population of voles is taking over a garden. The table below indicates the size of the population measured at the middle of each week during a summer.

t (weeks)	1	2	3	4	5	6
n (voles)	7	15	31	63	73	82

a. Find the average rate of change of the population over the entire measurement period.

b. Find the average rate of change of the population from week 3 to week 5.

2. [9 points] Use the graph of the function of $f(x)$ to answer the following questions.



a. $\lim_{x\to 0^+} f(x) =$ _____ **b**. $\lim_{x\to 0^-} f(x) =$ _____ **c**. $\lim_{x\to 0} f(x) =$ _____

d. $f(0) =$ _____ **e**. $f(5) =$ _____ **f**. $f(-6) =$ _____

g. $\lim_{x\to -4^+} f(x) =$ _____ **h**. $\lim_{x\to 5} f(x) =$ _____ **i**. $\lim_{x\to -6} f(x) =$ _____

3. [6 points] Compute the following limits. For each limit, justify your answer with a sentence or two.

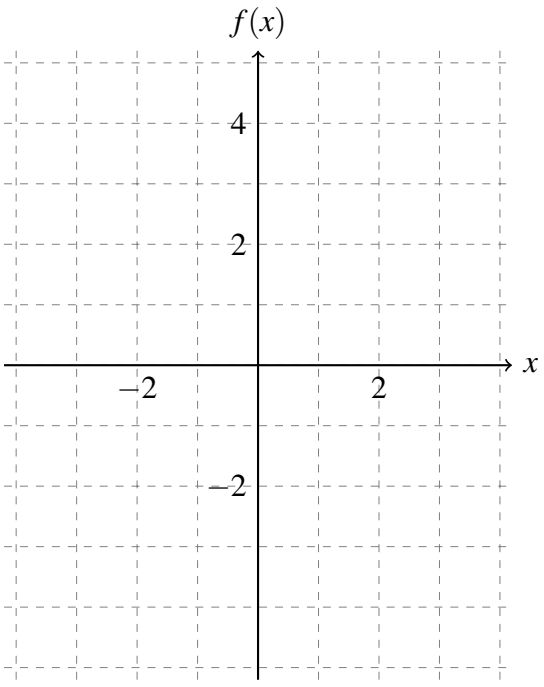
a. $\lim_{x\to 8^+} \dfrac{2+x}{(x-8)^2} =$ $\boxed{}$

b. $\lim_{x\to \pi^+} \dfrac{\sqrt{2}}{\sin(x)} =$ $\boxed{}$

4. [6 points] On the axes below, sketch the graph of the function

$$f(x) = \begin{cases} 2-x & x < 1 \\ 3 & x = 1 \\ \frac{1}{1-x} & x > 1. \end{cases}$$

Then compute, with brief justification, the requested values in the table.



Value	Justification
$f(1) =$	
$\lim_{x\to 1^-} f(x) =$	
$\lim_{x\to 1} f(x) =$	