

Name: _____

_____ / 25

Circle one: Rhodes (F01) | Bueler (F02) | Jurkowski (F03)

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

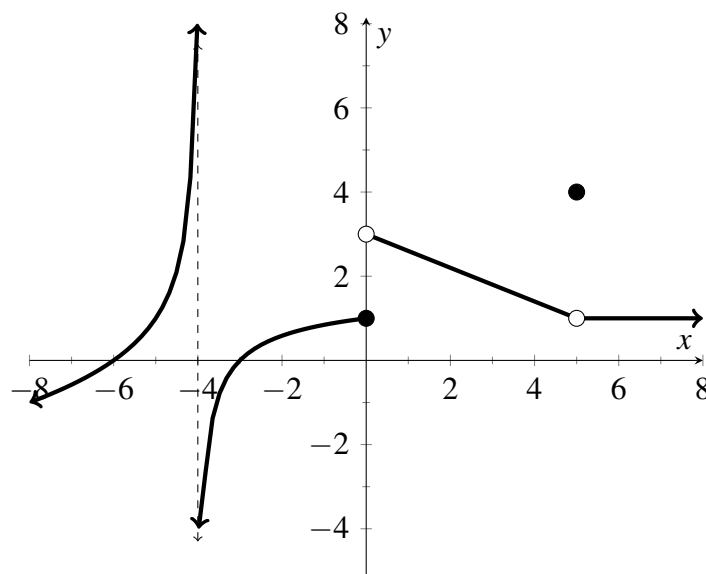
1. [4 points] In successive weeks, the amount of heating oil in a tank is recorded, as shown in the table.

t (weeks)	1	2	3	4	5	6
A (gallons)	237	203	157	132	99	62

- a. Find the average rate at which the amount changed over the entire period. Specify units.

- b. Find the average rate of change from week 2 to week 4.

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

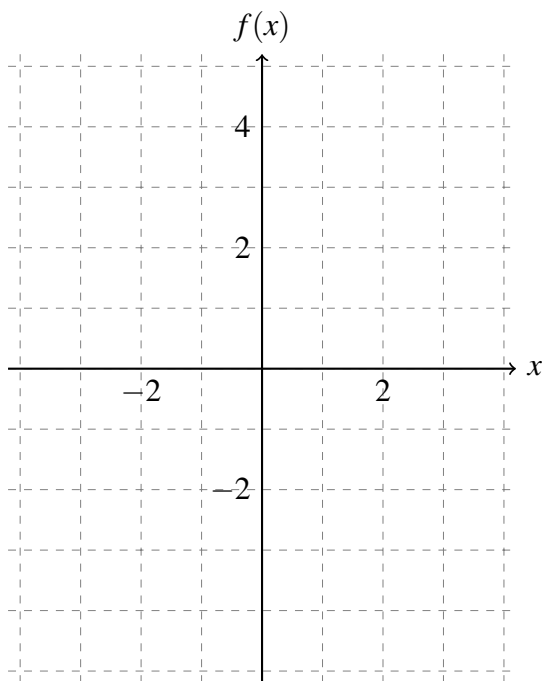


- a. $f(-6) =$ _____ b. $f(0) =$ _____ c. $f(5) =$ _____
- d. $\lim_{x \rightarrow 0^+} f(x) =$ _____ e. $\lim_{x \rightarrow 0^-} f(x) =$ _____ f. $\lim_{x \rightarrow 0} f(x) =$ _____
- g. $\lim_{x \rightarrow -4^+} f(x) =$ _____ h. $\lim_{x \rightarrow 5} f(x) =$ _____ i. $\lim_{x \rightarrow -6} f(x) =$ _____

3. [6 points] On the axes below, sketch the graph of the function

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

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



Value	Justification
$f(2) =$	
$\lim_{x \rightarrow 2^-} f(x) =$	
$\lim_{x \rightarrow 2} f(x) =$	

4. [6 points] Compute the following limits. For each limit, justify your answer with a sentence or two.

a. $\lim_{x \rightarrow 2^+} \frac{7+x}{(x-2)^2} =$

b. $\lim_{x \rightarrow \pi^+} \frac{\sqrt{2}}{\sin(x)} =$