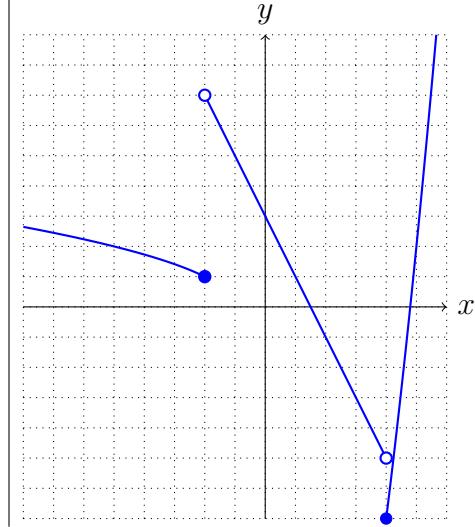


Quiz 1  
Show all your work

Name: \_\_\_\_\_  
Number: \_\_\_\_\_  
Signature: \_\_\_\_\_  
Score: \_\_\_\_/10

**Problem 1:** Draw the following piece-wise defined function over all real numbers.

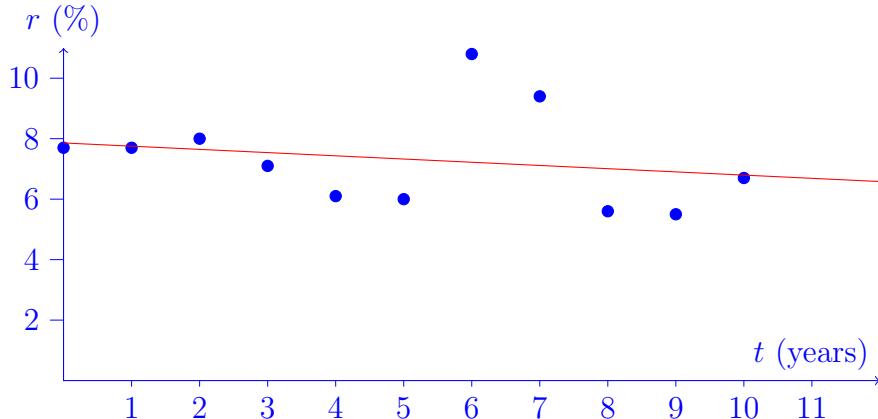
$$f(x) = \begin{cases} \sqrt{-1-x}, & x \leq -2, \\ 3-2x, & -2 < x < 4, \\ x^2 - 23, & \text{otherwise.} \end{cases}$$



Score: \_\_\_\_/5

**Problem 2:** Consider the following Canadian unemployment data for those with some post secondary education from 2014 to 2024 given by Stats Canada.

Year	$t$	Rate (%)
2014	0	7.7
2015	1	7.7
2016	2	8.0
2017	3	7.1
2018	4	6.1
2019	5	6.0
2020	6	10.8
2021	7	9.4
2022	8	5.6
2023	9	5.5
2024	10	6.7



a. State the best linear model for the given data. Next to the given table, draw a scatterplot with axes correctly labelled including units and dimensions of the window from your graphing calculator.

$$r = 7.859 - 0.1064t$$

Score: \_\_\_\_/4

b. Use your model to predict the unemployment rate in 2026. Comment on the accuracy of this prediction.

In 2026,  $t = 12$ , so  $r = 6.583\%$ .

Extrapolating is always dubious, and the data doesn't look all the linear.

Score: \_\_\_\_/1