



IM2 Quiz 2.2

Name: _____

Date: _____

Teacher: Mr. Rawlings and Mr. Dunham

Calculator: Active

Marks: ____ out of 30

Block: _____

1. For the following questions, refer to the relations $y = f(x)$ and $y = g(x)$ which are defined as follows:

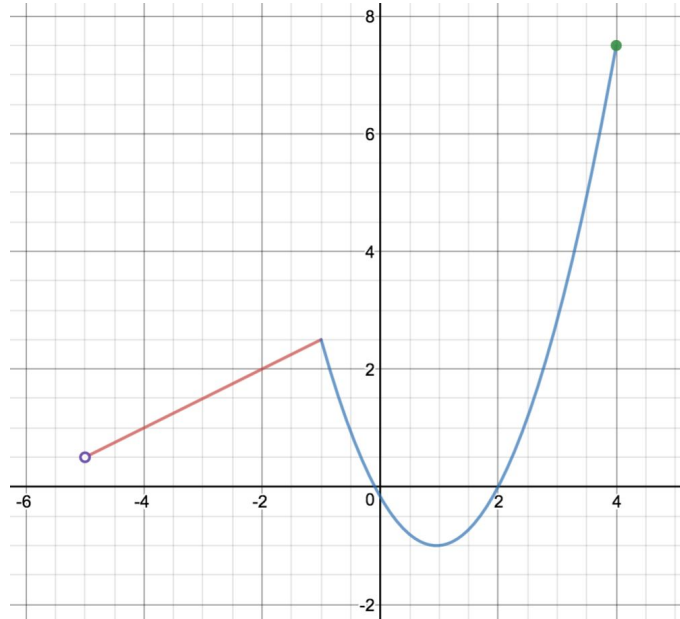
$$f = \{(-3, 5), (-7, 3), (5, 4), (1.2, 5), (-3, 5)\}$$

$$g = \{(1, 6), (2, 6), (6, 0), (1, 0), (0, 3), (3, 7)\}$$

- a. **[2 marks]** Which of the relations is NOT a function. Explain.
- b. **[1 mark]** Identify the domain of f .
- c. **[1 mark]** Identify the range of g .
- d. **[1 mark]** For what value(s) of x is $f(x) = 3$?
- e. **[1 mark]** For what value(s) of x is $g(x) = 0$?
- f. **[1 mark]** Find $f(-7)$.
- g. **[1 mark]** Find $g(0)$.
2. Given $y = -\frac{2}{3}x + 1$
- a. **[2 marks]** If the domain is given as $\{-3 < x \leq 6\}$, find the range.

b. **[2 marks]** If the domain is given as $\{-6, -3, 0, 3, 6, 9\}$, find the range.

3. Given the function $y = h(x)$ below.



a. **[2 marks]** For which value(s) of x is $h(x) = 1$?

b. **[2 marks]** What is the value of $h(2)$?

c. **[2 marks]** What is the domain of h ?

d. **[2 marks]** What is the range of h ?

4. Here is a data table for the population of the city of Cornwall. It measures the population every 10 years starting in the year 1900.

Year	Population
1900	46,000
1910	49,500
1920	51,374
1930	57,870
1940	58,200
1950	60,987
1960	65,135
1970	67,009
1980	71,034
1990	73,234
2000	75,876
2010	78,888

- a. **[3 marks]** Write down the equation of the line-of-best-fit for this data set using a linear regression.
- b. **[2 marks]** Based on your answer in part a, predict the population in the year 2020.
- c. **[1 mark]** In what year is the population of Cornwall predicted to surpass 100,000 people?
5. **[4 marks]** Solve the system of equations by graphing on your calculator. Round your answer to the nearest hundredth (two decimals).

$$y - 31 = 0.24(x + 100)$$

$$4x + y = 91$$