

Name: Answer Key

Mr. Janousek

Algebra 1

Unit 2 Test – October 14th!!!

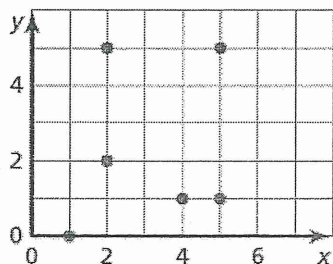
Unit 2 Test Review – Functions and Relations

Directions

Complete each problem in the space provided. Show work when evaluating functions.

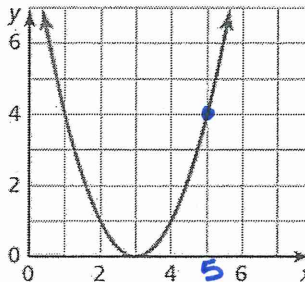
1. Look at the graphs and answer the questions below. Be sure to include your mathematical reasons why you selected each response.

a. (5 points)



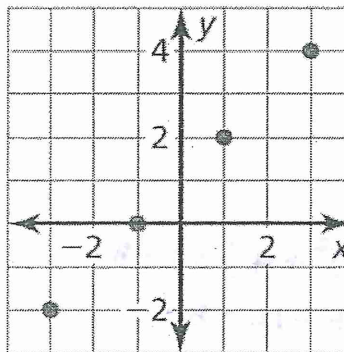
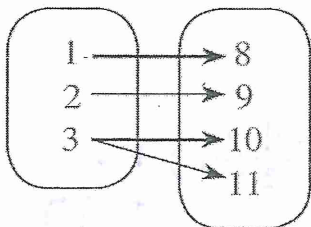
Function or not a function? Why?
Relation, input of 5 goes to 1 and 5.
 Continuous or discrete? Why?
Discrete, distinct points
 If $f(x) = 2$, then $x = 2$

b. (5 points)



Function or not a function? Why?
Passes VLT
 Continuous or discrete? Why?
Solid line over interval
 What is $f(5) = ?$
 $f(5) = 4$

Input, x Output, y

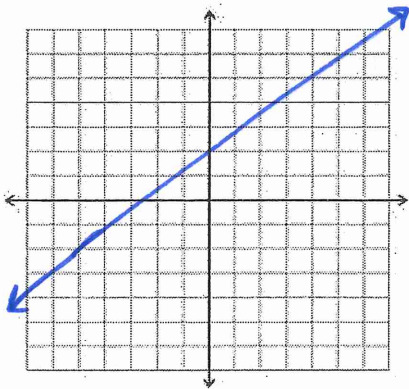


Function or not a function? Why?
(3, 10) and (3, 11)
3 has two different outputs
 Continuous or discrete? Why?
finite number of points

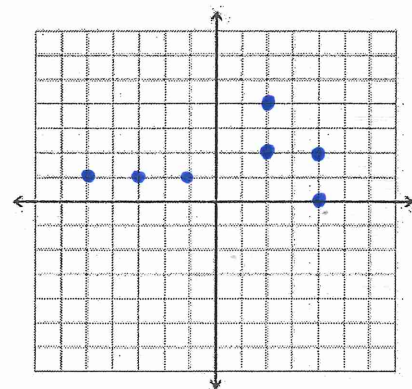
Function or not a function? Why?
input \exists a unique output
 Continuous or discrete? Why?
Distinct points over an interval
 Domain: $\{-3, -1, 1, 3\}$
 Range: $\{-2, 0, 2, 4\}$

2. On the graph provided, draw a relation that is:

a. continuous and a function. (2 points)

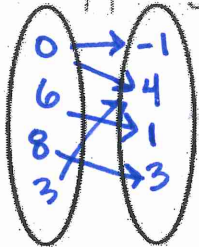


b. discrete and not a function. (2 points)



3. Given the relation $\{(0, -1), (0, 4), (6, 1), (8, 3), (3, 4)\}$ visually represent the same relation in the following forms: mapping diagram, t-chart, table, and graph. (2 points each)

Mapping



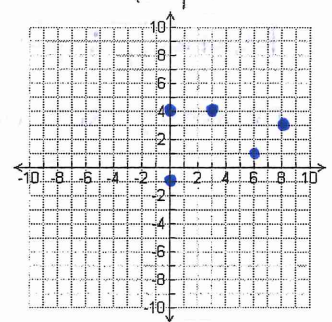
T-chart

x	y
0	-1
0	4
6	1
8	3
3	4

Table

x	0	0	6	8	3
y	-1	4	1	3	4

Graph



4. Find each value for the given function. (3 points each part)

$$f(x) = 2x^2 + 4x - 8$$

$$g(x) = -\frac{4}{3}x + 6$$

a. $f(-3) =$

$$\begin{aligned} f(-3) &= 2(-3)^2 + 4(-3) - 8 \\ &= 2 \cdot 9 + -12 - 8 \\ &= \boxed{-2} \end{aligned}$$

b. $g(-1) =$

$$\begin{aligned} g(-1) &= -\frac{4}{3}(-1) + 6 \\ &= \frac{4}{3} + 6 = \boxed{7\frac{1}{3}} \end{aligned}$$

c. $f(2) = 2(2)^2 + 4(2) - 8$

$$f(2) = \boxed{8}$$

d. $g(2) = -\frac{4}{3}(2) + 6$

$$\begin{aligned} g(2) &= -\frac{8}{3} + \frac{18}{3} = \boxed{\frac{10}{3}} \end{aligned}$$

5. Find the domain of the the function when $y = -2$. (3 points)

$$4x + 2y = 6$$

$$4x + 2(-2) = 6$$

$$4x + 4 = 6$$

$$\frac{4x}{4} = \frac{10}{4}$$

$$x = \frac{5}{2}$$

6. Find the range of the function when $x = 5$. (3 points)

$$y = x - 4$$

$$y = 5 - 4$$

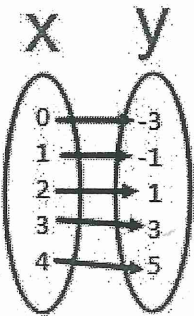
$$y = 1$$

7. Match the relations on the left with a rule on the right. (1 point each)

C

X	Y
0	5
1	6
2	7
3	8
4	9

A



RULE

~~a.~~ $y = 2x - 3$

~~b.~~ $y = x^2$

~~c.~~ $y = x + 5$

(0, 0)

(1, 1)

B

(2, 4)

(3, 9)

(4, 16)