

Quiz Review 4.2 - 4.6 Review

For each table, determine whether the relationship is a function. Then represent the relationship using an equation.

1.

x	y
0	0
1	4
2	8
3	12

function, yes
 $y = 4x$

2.

x	y
4	7
2	5
0	3
2	1

not a function

3.

x	y
0	4
1	3
2	2
3	1

function, yes
 $y = -x + 4$

4.

x	y
2	-6
0	0
-1	-5
-1	5

not a function

5. Tell whether the function below is linear or nonlinear. Explain.

x	y
0	-3
1	2
2	7
3	12
4	17

linear y increases @ a rate of 5 as x increases by 1

Each set of ordered pairs represents a function. Write a rule that represents the function. (make a table!)

6. (0, 5), (1, 6), (2, 7), (3, 8), (4, 9)

$y = x + 5$

7. (0, 0), (1, 1), (2, 4), (3, 9), (4, 16)

$y = x^2$

8. (0, 0), (1, 3), (2, 6), (3, 9), (4, 12)

$y = 3x$

9. (0, -8), (1, -7), (2, -6), (3, -5), (4, -4)

$y = x - 8$

10. Writing Is the point $(\frac{7}{2}, \frac{3}{2})$ on the graph of $6x - 2y = 18$? How do you know?

$3 \times (\frac{7}{2}) - 2 \times (\frac{3}{2}) = 18?$

$21 - 3 = 18$
 $18 = 18$ ✓ yes

11. What is the difference between a discrete and a continuous function? Explain.

↓
points

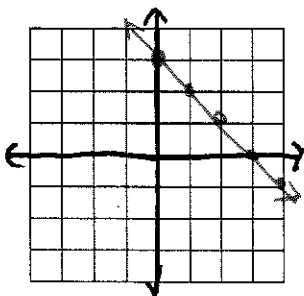
↓
lines (connected points)

(make table)

Make a table of values for each function. Then graph each function rule. (~~MAKE X-Y AXIS~~)

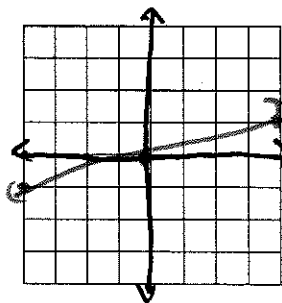
12. $y = -x + 3$

x	y
-2	5
-1	4
0	3
1	2
2	1



13. $y = \frac{1}{4}x$

x	y
-2	-.5
-1	-.25
0	0
1	.25
2	.5

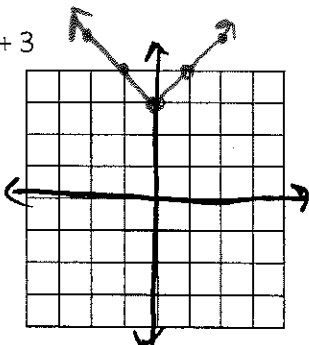


$x^2 = \cup$

$|x| = \nabla$

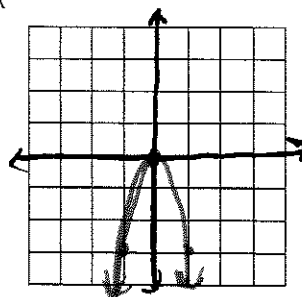
14. $y = |x| + 3$

x	y
-2	5
-1	4
0	3
1	4
2	5



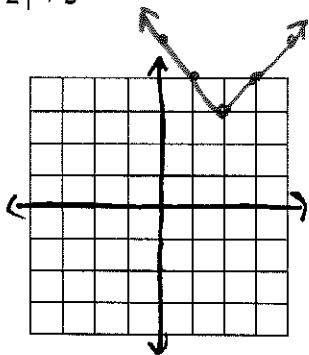
15. $y = -3x^2$

x	y
-2	-12
-1	-3
0	0
1	-3
2	-12



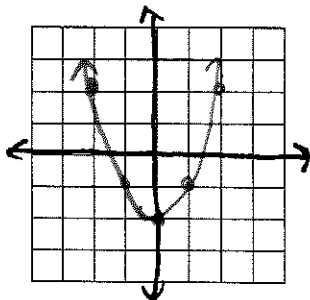
16. $y = |x - 2| + 3$

x	y
-2	7
-1	6
0	5
1	4
2	3
3	4
5	5



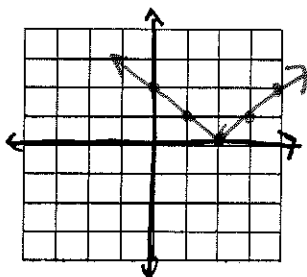
17. $y = x^2 - 2$

x	y
-2	2
-1	-1
0	-2
1	-1
2	2



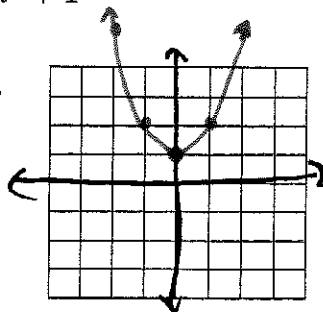
18. $y = |x - 2|$

x	y
0	2
1	1
2	0
3	1
4	2



19. $y = x^2 + 1$

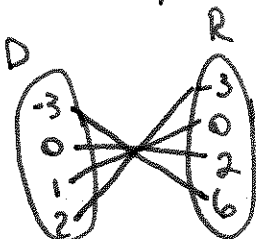
x	y
-2	5
-1	2
0	1
1	2
2	5



Identify the domain and range of each relation. Use a mapping diagram to determine whether the relation is a function.

20. $\{(-3, 6), (0, 2), (1, 0), (2, -3)\}$

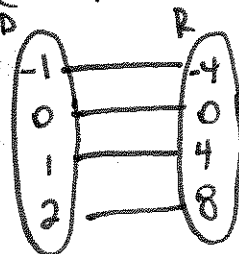
$D: \{-3, 0, 1, 2\}$
 $R: \{-3, 0, 2, 6\}$



yes,
function

21. $\{(-1, -4), (0, 0), (1, 4), (2, 8)\}$

$D: \{-1, 0, 1, 2\}$
 $R: \{-4, 0, 4, 8\}$



yes
function

Find the range of each function for the given domain.

22. $f(x) = -2x + 1; \{-2, 0, 2, 4, 6\}$

x	$-2x + 1$	y
-2		5
0		1
2		-3
4		-7
6		-11

$R = \{-11, -7, -3, 1, 5\}$

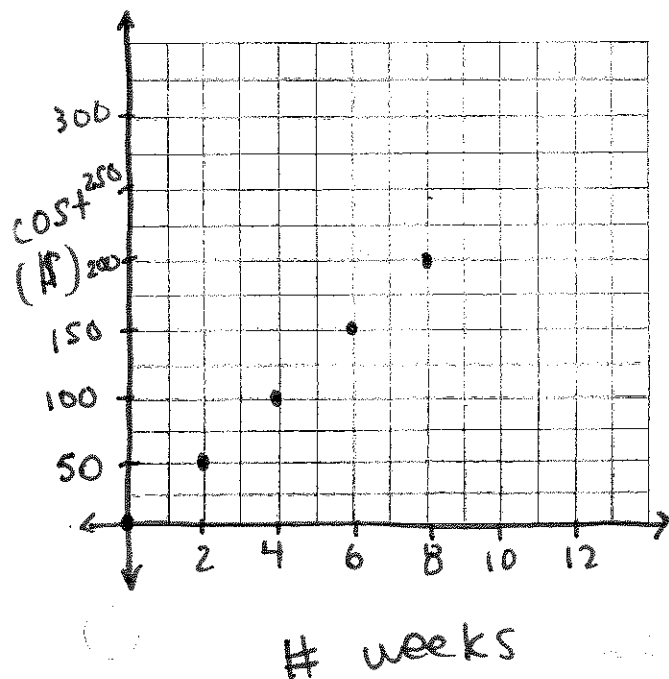
23. $f(x) = x^3 + 1; \{-2, -1, 0, 1, 2\}$

x	y
-2	-7
-1	0
0	1
1	2
2	9

$R = \{-7, 0, 1, 2, 9\}$

Graph each function rule. Explain your choice of intervals on the axes of the graph. Tell whether the graph is *tinuous* or *discrete*.

24. The cost d , in dollars, for a parking pass depends on the number of whole weeks w you purchase. This situation is represented by the function rule $d = 25w$.



w	d
0	0
2	50
4	100
⋮	⋮

Discrete because you cannot buy a portion of a weeks time.

For problems 25 – 31, Write a function rule that represents each situation, solve if necessary.

25. The price p of an ice cream is \$3.95 plus \$0.85 for each topping t on the ice cream.

$$p = .85t + 3.95$$

26. A babysitter's earnings e are a function of the number of hours n worked at a rate of \$7.25 per hour.

$$e = 7.25n$$

27. The price p of a club's membership is \$30 for an enrollment fee and \$12 per week w to be a member.

$$p = 12w + 30$$

28. A plumber's fees f are \$75 for a house call and \$60 per hour h for each hour worked.

$$f = 60h + 75$$

29. A hot dog d costs \$1 more than one-half the cost of a hamburger h .

$$d = .5h + 1$$

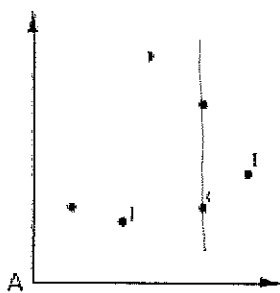
30. José is 3 years younger than 3 times his brother's age. Write a rule that represents José's age j as a function of his brother's age b . How old is José if his brother is 5?

$$j = 3b - 3 \quad 12 \text{ years old}$$

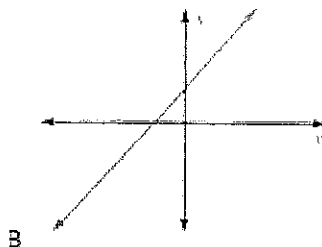
31. A taxicab charges \$4.25 for the first mile and \$1.50 for each additional mile. Write a rule for describing the total rate r as a function of the total miles m . What is the taxi rate for 12 miles?

$$r = 1.5(m-1) + 4.25 \quad \$ 20.75$$

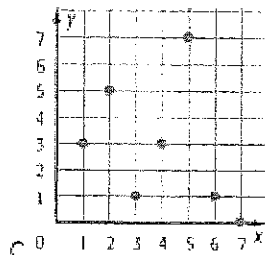
32. Does the data or graph represent a function? If so, is it discrete or continuous?



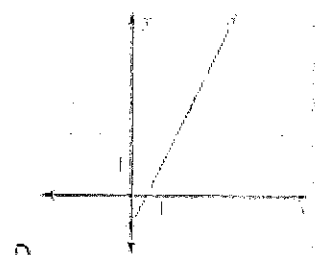
no



yes
continuous



yes
discrete



yes
continuous

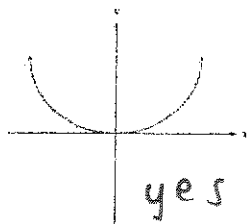
E. $\{(5,4), (6,3), (7,2)\}$

yes discrete

F. $y = 3x + 2$

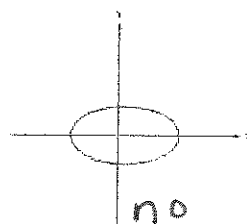
yes (continuous)

G.



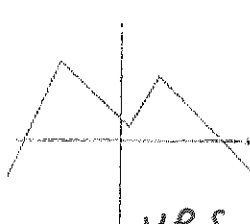
yes
continuous

H.



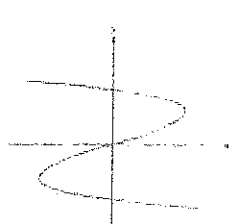
no
~~continuous~~

I.



yes
continuous

J.



no