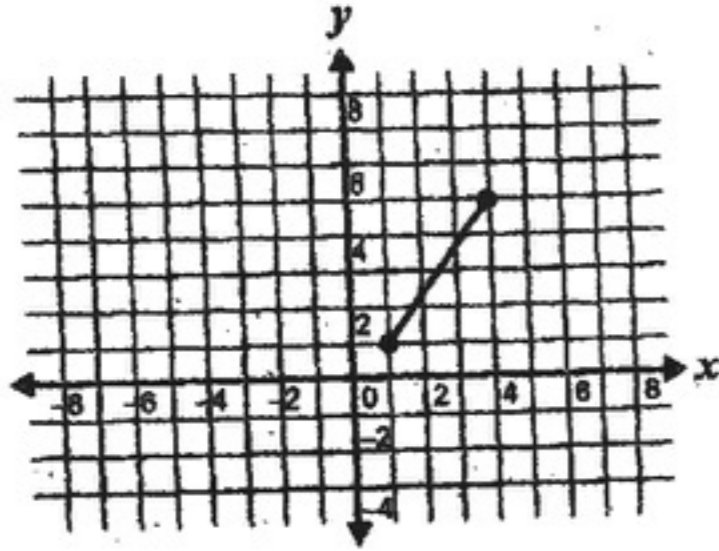


Name: Key Date: _____

You will need a partner to complete this assignment. One person is to complete all the odd problems and the other person is to complete all the even problems. All work must be shown. When finished you are to explain how you completed your problems to your partner. After going over all the problems you will check your answers again the answer key. This will be turned in for a grade at the end of class.

The domain is all of the x values that lie on the function in the graph from the lowest x value to the highest x value. The range is all of the y values that lie on the function in the graph from the lowest y to the highest y .

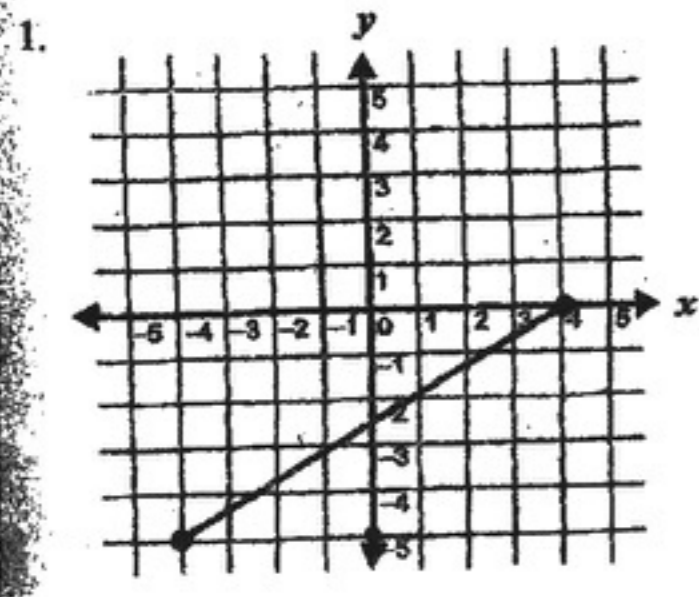
Find the domain and range of the graph.



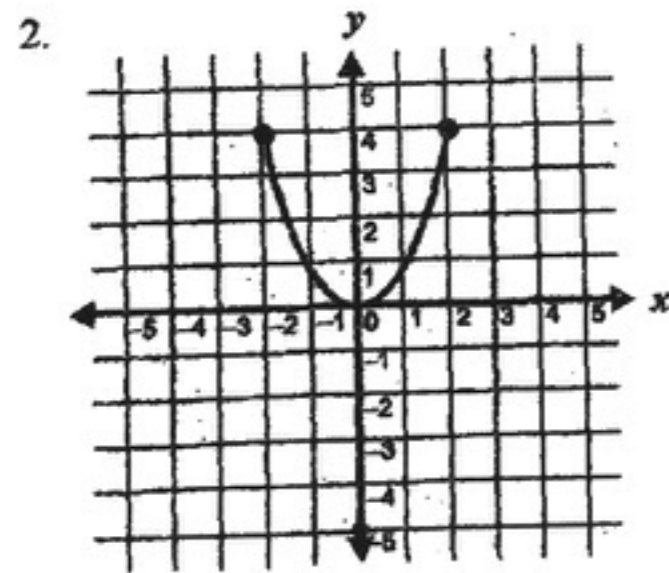
Step 1: First find the lowest x value depicted on the graph. In this case it is 1. Then find the highest x value depicted on the graph. The highest value of x on the graph is 4. The domain must contain all of the values between the lowest x value and the highest x value. The easiest way to write this is $1 \leq \text{Domain} \leq 4$ or $1 \leq x \leq 4$.

Step 2: Perform the same process for the range, but this time look at the lowest and highest y values. The answer is $1 \leq \text{Range} \leq 5$ or $1 \leq y \leq 5$.

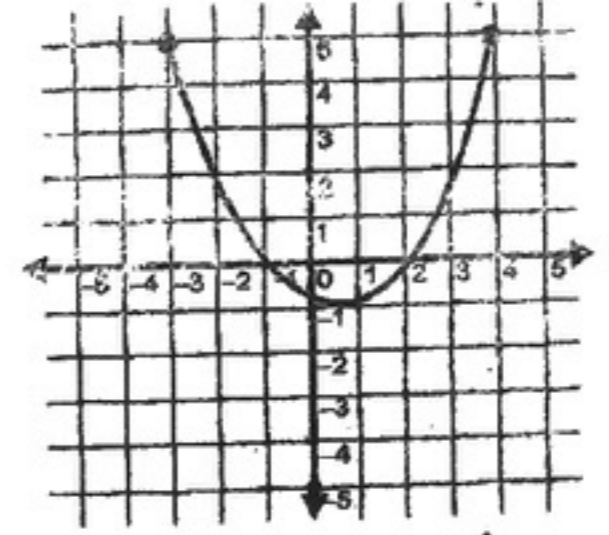
Find the domain and range of each graph below. Write your answers in the line provided. (DOK 2)



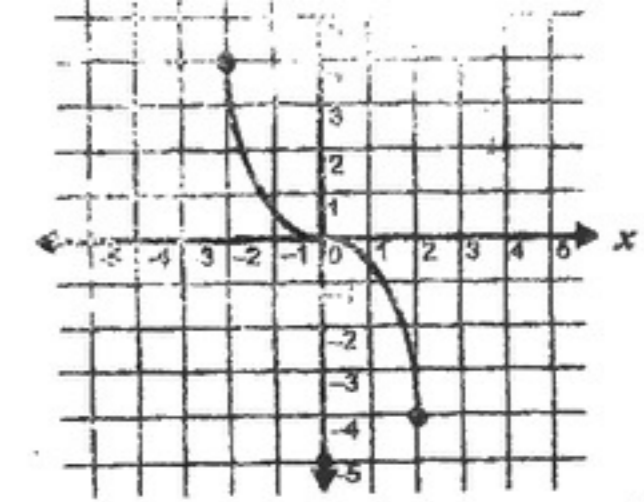
$-4 \leq x \leq 4$
 $-5 \leq y \leq 0$



$-2 \leq x \leq 2$
 $0 \leq y \leq 4$

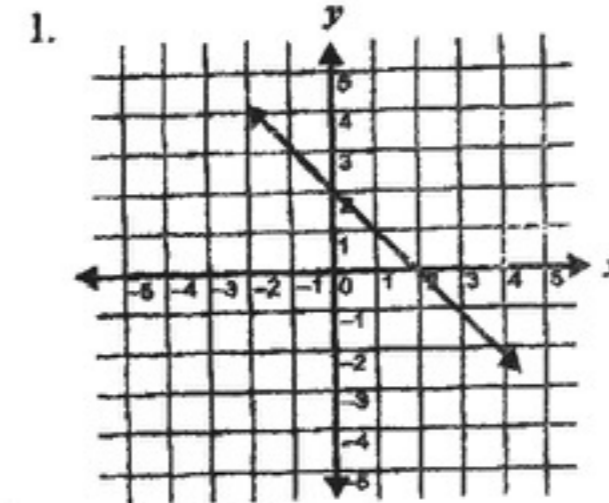


$-3 \leq x \leq 4$ $-1 \leq y \leq 5$

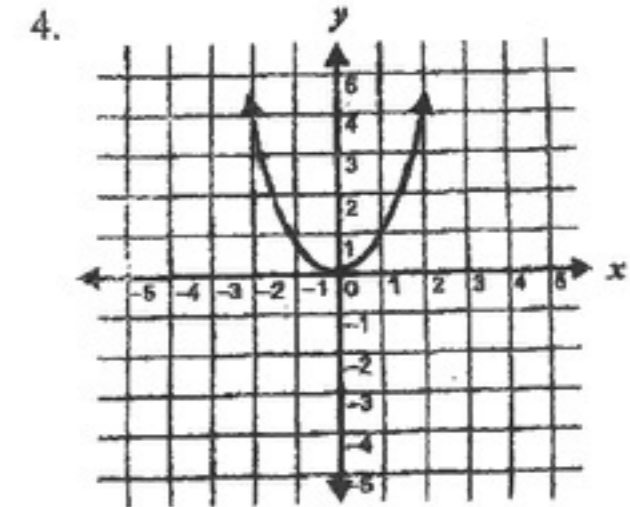


$-2 \leq x \leq 2$ $-4 \leq y \leq 4$

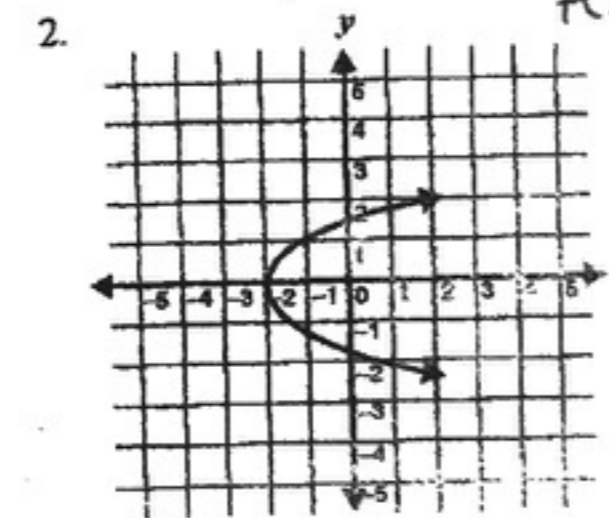
Determine whether or not each of the following graphs is a function. If it is, write function on the line provided. If it is not a function, write NOT a function on the line provided. (DOK 1) Explain your answer in a complete sentence



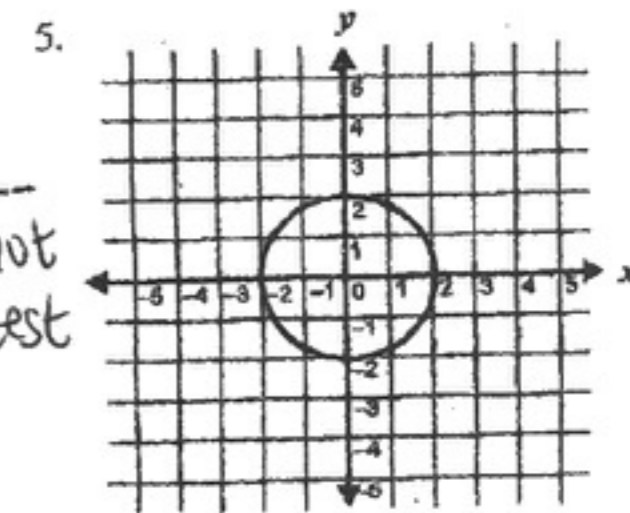
F, passes vertical line test



F, passes vertical line test



NF, does not pass test



NF, does not pass test

Find the solution for each of the following.

1. $F(x) = 2 + 3x^2$; find $F(3)$
 $= 2 + 3(3)^2$
 $= 29$

2. $f(x) = 4x + 6$; find $f(-4)$
 $= 4(-4) + 6 = -10$

3. $H(x) = 6 - 2x^2$; find $H(-1)$
 $= 6 - 2(-1)^2$
 $= 4$

6. $G(x) = 4x^2 + 4$; find $G(0)$
 $= 4(0)^2 + 4 = 4$

7. $f(x) = 7 - 6x$; find $f(-4)$
 $= 7 - 6(-4) = 31$

8. $h(x) = 2x^2 + 10$; find $h(5)$
 $= 2(5)^2 + 10$
 $= 2(25) + 10$
 $= 60$

Simplify.

1. For $f(x) = x + 3$; find $f(x - 1)$

2. For $f(x) = x$; find $f(4x + 12)$

3. For $h(x) = \frac{1}{2}x - 7$; find $h(6x)$

4. For $f(x) = 2x - 5$; find $f(-x)$

5. For $f(x) = 12x$; find $f(x + 1)$

6. For $f(x) = 2 - x$; find $f(-2x)$

① $f(x-1) = (x-1) + 3$

$f(x-1) = x + 2$

② $f(4x+12) = 4x + 12$

③ $h(6x) = \frac{1}{2}(6x) - 7$

$h(6x) = 3x - 7$

④ $f(-x) = 2(-x) - 5$

$f(-x) = -2x - 5$

⑤ $f(x) = 12x$

$f(x+1) = 12(x+1)$

$f(x+1) = 12x + 12$

⑥ $f(x) = 2 - x$

$f(-2x) = 2 - (-2x)$

$f(-2x) = 2 + 2x$

BOTH PARTNERS WILL DO ALL PROBLEMS ON THIS PAGE

Follow the directions for each problem below.

1. Nasir and Ian decide to open a tutoring business. The two will evenly split the profit from the business. The office costs \$300 per month to rent. They charge \$30 an hour for their tutoring services.

A) Create a linear equation that models this situation.

B) State the domain and range of the equation.

C) State the domain and range of the equation in context of this problem. Explain your answer.

D) Compare your answers with the other students in your class.

$y = 30x - 300$

$x \geq 0$ $y \geq -300$

The number of hours tutoring can be greater than or equal to 0. The total profit is greater than or equal to -300.

Tell whether the relation or function is linear or non-linear.

Explain your answer

1. $\{(0, 2), (2, 4), (4, 6)\}$

3. $\{(11, 3), (12, 2), (13, 3)\}$

5. $y = 4x^2 - 2$

2. $\{(4, 1), (4, 2), (4, 5)\}$

4. $y = 2x - 6$

6. $y = 2x^2 - 2x^2 + x + 1$

7.

x	y
-1	2
0	-5
1	2

 Non-Linear

8.

x	y
-1	6
0	0
1	6

 Non-Linear

①

x	y
0	2
2	4
4	6

 Linear

③

x	y
11	3
12	2
13	3

 Non-Linear

②

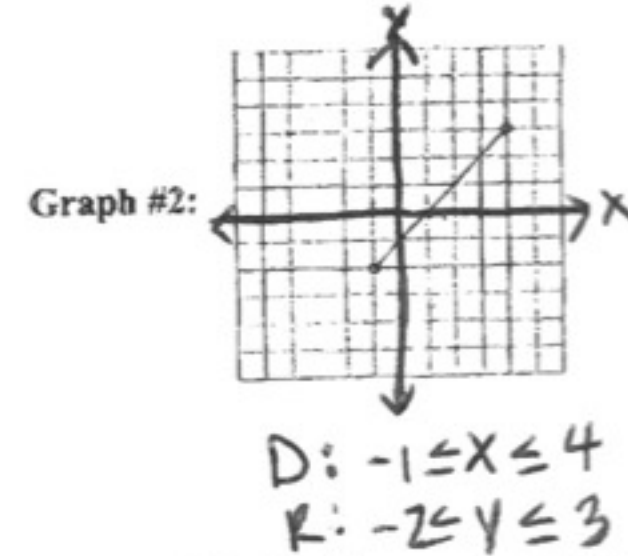
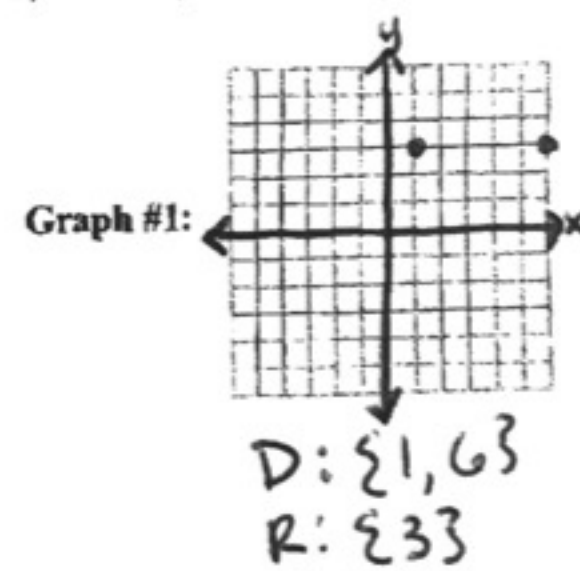
x	y
4	1
4	2
4	5

 Non-Linear

④ $y = 2x - 6$
 $y = mx + b$ ✓
Linear

⑤ $y = 4x^2 - 2$
Non-Linear - x^2 is U shaped

⑥ $y = 2x^2 - 2x^2 + x + 1$
 $y = x + 1$
 $y = mx + b$ ✓
Linear



Cannot create a map because continuous graph

3. Ms. Maxwell wrote four function tables on the board for her class, as shown below. Sort the tables into two groups: linear and non-linear. Write a defense argument to present to your class justifying your decision.

Table A:

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

Linear $\frac{\Delta y}{\Delta x} = \frac{-4}{4} = -1$
 $= \frac{-2}{2} = -1$
 $= \frac{-3}{3} = -1$

Table B:

x	-4	-1	2	5
y	16	1	4	25

Non-Linear

Table C:

x	-3	0	2	4
y	-27	0	8	64

Non-Linear

Table D:

x	-3	-1	3	5
y	-14	-8	4	10

Linear $\frac{\Delta y}{\Delta x} = \frac{6}{2} = 3$
 $\frac{\Delta y}{\Delta x} = \frac{12}{4} = 3$
 $\frac{\Delta y}{\Delta x} = \frac{6}{2} = 3$