Eighth Grade - Functions

1) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Add two

In	10	11	12	13	14
Out					

- OUT = 32,13,64,15,32 equ : y = x-4
- OUT = 12,13,14,15,16 equ : y = x+2
- OUT = 22,43,14,25,46 equ : y = x-7
- OUT = 11,12,15,18,16 equ : y = x-3

2) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Add(-4)

In	-2	0	2	8	10
Out					

- OUT = -8, -6, -4, 4, 6 equ : y = x-9
- OUT = -6, -4, -2, 4, 6 equ : y = x-4
- OUT = -7, -5, -3, 4, 6 equ : y = x-8
- OUT = -9, -7, -5, 4, 6 equ : y = x-10

3) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Add(-9)

In	6	8	10	15	-10
Out					

- OUT = -6, -5, 4, 7, -9 equ : y = x-8
- OUT = -8, -5, 9, 8,-20 equ : y = x-1
- OUT = -4, -2, 3, 7,-20 equ : y = x-20
- OUT = -3, -1, 1, 6,-19 equ : y = x-9

4) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Multiply by 3 followed by add 5

In	0	1	2	3	5
Out					

- OUT = 7,10,13,16,22 equ : y = 5x+7
- OUT = 6,9,12,15,21 equ : y = 4x+6
- OUT = 5,8,11,14,20 equ : y = 3x+5
- OUT = 8,11,14,17,23 equ : y = 6x+8

5) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Multiply by 5 and subtract 4

In	-5	-4	-3	-2	-1
Out					

- OUT = -40,-26,-21,-16,-11 equ : y = 6x-7
- OUT = -30,-25,-20,-15,-10 equ : y = 6x-6
- OUT = -41,-28,-22,-17,-12 equ : y = 8x-7
- OUT = -29,-24,-19,-14,-9 equ : y = 5x-4

6) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Multiply by 1/2 and add 3

In	2	4	6	8	10
Out					

- OUT = 5,6,7,8,9 equ : y = ½x + 4
- OUT = 9,10,11,12 equ : y = ½x + 5
- OUT = 4,5,6,7,8 equ : y = ½x + 3
- OUT = 12,13,14,15 equ : y = ½x + 6

7) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: Square the input and add 3d subract 5

In	-2	-1	0	1	2
Out					

- OUT = 9,7,8,2,5 equ : $y = x^2+6$
- OUT = 7,4,3,4,7 equ : $y = x^2+3$
- OUT = 10,11,12,13,14 equ : $y = x^2+7$
- OUT = 8,4,4,5,7 equ : $y = x^2+4$

8) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y.Rule: Cube the input and subract 5

In	-1	-2	-3	2	1
Out					

- OUT = -6,-13,-32,3,-4 equ : $y = x^3-5$
- OUT = -9,-16,-34,7,9 equ : $y = x^3-8$
- OUT = -8,-15,-33,5,-7 equ : $y = x^3-7$
- OUT = -7,-14,-32,4,-5 equ : $y = x^3-6$

9) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: subtract two times of input from 5

In	0	1	4	5	7
Out					

- OUT = 5,3,-3,-5,-9 equ : $y = 5–2x$
- OUT = 7,8,9,10,11 equ : $y = 6-4x$
- OUT = 5,6,7,8,9 equ : $y = 7-8x$
- OUT = 6,4,-4,-6, -9 equ : $y = 5-3x$

10) IN and OUT Box and write the equation of the functions rule by taking IN as x and OUT as y?Rule: subtract three times the square of input from 7

In	-2	-3	-4	-5	-1
Out					

- OUT = -7,-8,-9,-10,11 equ : $y = 9-4x^2$
- OUT = -5,-20,-41,-68,4 equ : $y = 7-3x^2$
- OUT = -5,-6,-7,-8,-9,-10 equ : $y = 6-3x^2$
- OUT = -6,-7,-8,-9,-10 equ : $y = 8-4x^2$

11) Complete the input and output of the following table and write down the function rule?

x	-2	-3	-4	-5	-6	0
y	4	9				

- Slope = -8, y = -8x – 3, y = 11,15,27,-8
- Slope = -5, y = -5x – 6,y = 14,19,24,-6
- Slope = -7, y = -7x – 2, y = 14,27,13,-8
- Slope = -6, y = -6x – 3, y = 15,17,23,-7

12) Complete the input and output of the following table and write down the function rule?

x	2	3	4	5	6	30
y	7	10	13			

- Slope = 2, y = 2x + 2, y = 14,17,91
- Slope = 4, y = 4x + 1, y = 16,17,93
- Slope = 3, y = 3x + 1 y = 16,19,91
- Slope = 7, y = 7x + 3, y = 11,13,95

13) Complete the input and output of the following table and write down the function rule, y = 3x - 4?

x	-3	-2		1		5
y	-13	-10	-4		5	

- Slope = 5, y = 5x – 1, x = 0, 6, y = -1, 13
- Slope = 3, y = 3x – 4, x = 0, 3, y = -1, 11
- Slope = 4, y = 4x – 1, x = 0, 6, y = -2, 14
- Slope = 7, y = 7x – 4, x = 0, 4, y = -1, 12

14) Complete the input and output of the following tables and write down the function rule: $y = x^3 - 1$

x	0	3	4		-1	
y	-1	-26		124		28

- No constant slope, $y = x^3 - 1$, x (5, -3), y (63, -2)
- Slope=6, $y = 6x^3 - 1$, x (3, -5), y (51, -3)
- Slope=5, $y = 5x^3 - 1$, x (4, -2), y (65, -5)
- Slope=7, $y = 7x^3 - 1$, x (4, -7), y (67, -5)

15) Complete the input and output of the following tables and write down the function rule, y = 2x - 1

x	4	5		8		
y	7	9	11		19	-1

- Constant slope, y = 4x – 1, x (4, 12, 0), y (12, 15)
- No constant slope, y = 3x – 5, x (5, 12, 0), y (17, 13)
- No constant slope, y = 6x – 3, x (5, 12, 0), y (13, 17)
- Constant slope, y = 4x – 1, x (4, 12, 0), y (12, 15)

16) Write the domain and range of the following relations {(1,2), (-1,2), (3,4), (-3,4), (5,6),(-5,6)?

- Domain: {-1,-3,-5},Range: {1,2,2}

- Domain: {1,-1,3,-3,5,-5}, Range: {2,4,6}
- Domain: {1,3,5},Range: {1,4,3}
- Domain: {0, 2,1,2,-3,5,6},Range: {2,4,6}

17) Write the domain and range of the following relations {(0, -1), (1,-1),(2,-1),(3,-1),(4,-1)?

- Domain: {0 ,1,2,2,4},Range: {3}
- Domain: {0 ,1,2,3,4}, Range: {-1}
- Domain: {0 ,3,4,3,4},Range: {6}
- Domain: {1,2,3,4},Range: {-2}

18) Write the domain and range of the following relations {(2,8), (3,4), (2,9), (5,9), (0,9)}?

- Domain: {2, 3, 5, 0}, Range: {2,4,3}
- Domain: {2}, Range: {2,4,3}
- Domain: {2, 3, 2, 5, 0}, Range: {2,4,1}
- Domain: {2, 3, 5, 0}, Range: {8,4,9}

19) Write the domain and range of the following relations {(7,8), (8,7),(2,3),(3,2),(4,5),(5,4)}?

- Domain: { 2, 3, 4, 5}, Range: {5, 7, 3, 2, 2, 1}
- Domain: {1, 1, 2, 3, 4, 6}, Range: {8, 3, 3, 2, 2, 2}
- Domain: {3, 9, 0, 1, 4, 5},Range: {5, 6, 3, 2, 5, 5}
- Domain: {7, 8, 2, 3, 4, 5}, Range: {8, 7, 3, 2, 5, 4}

20) Write the domain and range of the following relations {(2,3), (2,4), (2,5),(2,6),(2,7)}?

- Domain: {2, 2, 2, 2, 2} ,Range: {1, 4, 2, 6, 6}
- Domain: {2, 3, 4, 5, 6, 7} ,Range: {2, 4, 4, 3, 2}
- Domain: {2} , Range: {3, 4, 5, 6, 7}
- Domain: {1, 3, 2, 5, 4, 9} ,Range: {2, 1, 5, 6, 5}

21) Construct a table of values that includes x = -3, -2, -1, 0, 1, 2 and 3 for the following functions. y = 3x - 2?

a)

x	-3	-2	-1	0	1	2	3
y	-11	-8	-5	-2	1	4	7

b)

x	-3	-2	-1	0	1	2	3
y	-108	-32	-4	0	4	32	108

c)

x	-3	-2	-1	0	1	2	3
y	-18	-8	-2	0	-2	-8	-18

d)

x	-3	-2	-1	0	1	2	3
y	-4.5	-2	-0.5	0	-0.5	-2	-4.5

- b
- d
- a
- c

22) Construct a table of values that includes x = -3, -2, -1, 0, 1, 2 and 3 for the following functions. $y = 4x^3$?

a)

x	-3	-2	-1	0	1	2	3
y	-11	-8	-5	-2	1	4	7

b)

x	-3	-2	-1	0	1	2	3
y	-108	-32	-4	0	4	32	108

c)

x	-3	-2	-1	0	1	2	3
y	-18	-8	-2	0	-2	-8	-18

d)

x	-3	-2	-1	0	1	2	3
y	-4.5	-2	-0.5	0	-0.5	-2	-4.5

- c
- d
- b
- a

23) Construct a table of values that includes x = -3, -2, -1, 0, 1, 2 and 3 for the following functions. $y = -2x^2$?

a)

x	-3	-2	-1	0	1	2	3
y	-11	-8	-5	-2	1	4	7

b)

x	-3	-2	-1	0	1	2	3
y	-108	-32	-4	0	4	32	108

c)

x	-3	-2	-1	0	1	2	3
y	-18	-8	-2	0	-2	-8	-18

d)

x	-3	-2	-1	0	1	2	3
y	-4.5	-2	-0.5	0	-0.5	-2	-4.5

- d
- b
- a
- c

24) Construct a table of values that includes x = -3, -2, -1, 0, 1, 2 and 3 for the following functions. $y = -\frac{1}{2}x^2$

a)

x	-3	-2	-1	0	1	2	3
y	-11	-8	-5	-2	1	4	7

b)

x	-3	-2	-1	0	1	2	3
y	-108	-32	-4	0	4	32	108

c)

x	-3	-2	-1	0	1	2	3
y	-18	-8	-2	0	-2	-8	-18

d)

x	-3	-2	-1	0	1	2	3
y	-4.5	-2	-0.5	0	-0.5	-2	-4.5

- d
- a
- b
- c

25) Construct a table of values that includes x = -3, -2, -1, 0, 1, 2 and 3 for the following functions. $y= (1/5)\ x^3$

a)

x	-3	-2	-1	0	1	2	3
y	-11	-8	-5	-2	1	4	7

b)

x	-3	-2	-1	0	1	2	3
y	-108	-32	-4	0	4	32	108

c)

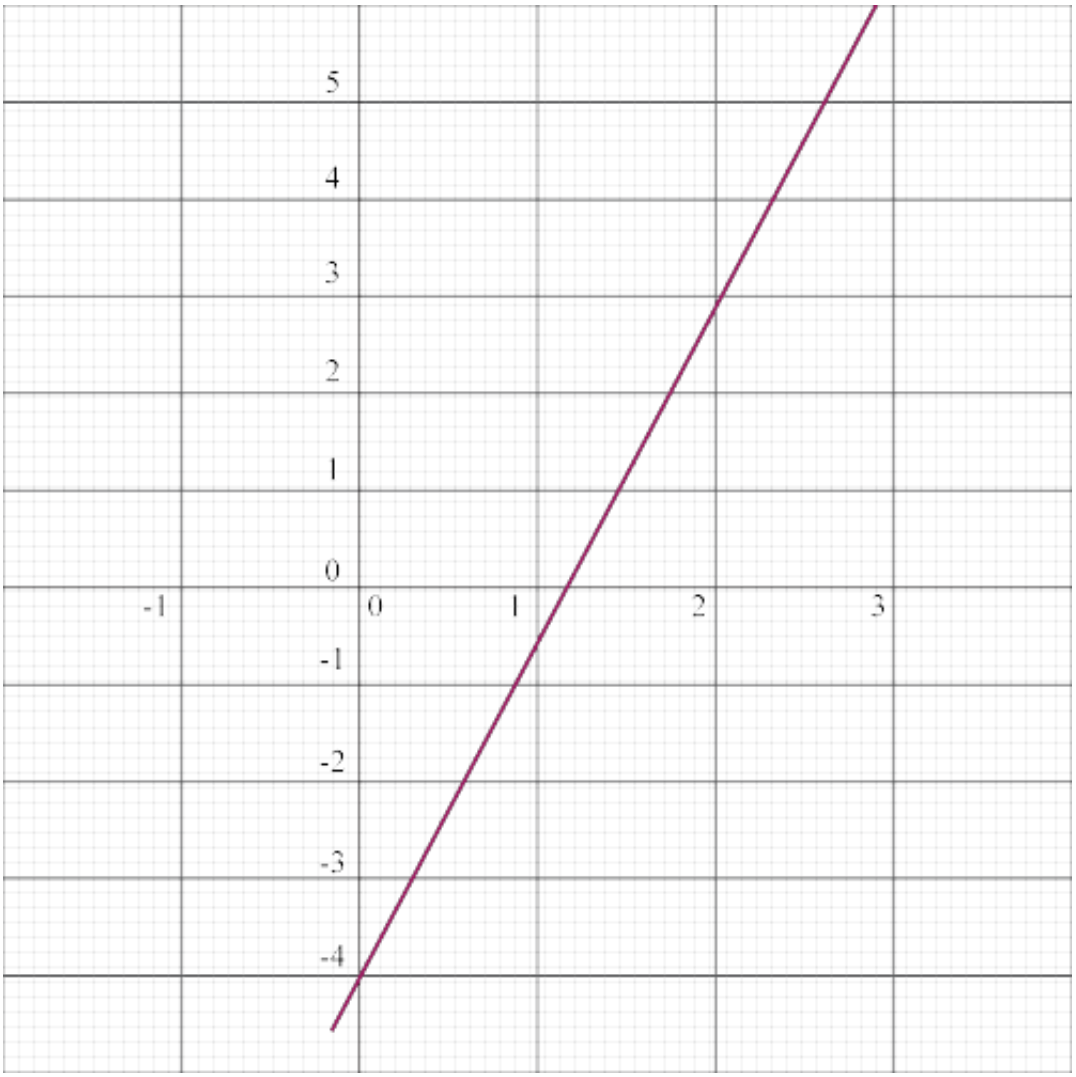
x	-3	-2	-1	0	1	2	3
y	-27/5	-8/5	-1/5	0	1/5	8/5	27/5

d)

x	-3	-2	-1	0	1	2	3
y	-4.5	-2	-0.5	0	-0.5	-2	-4.5

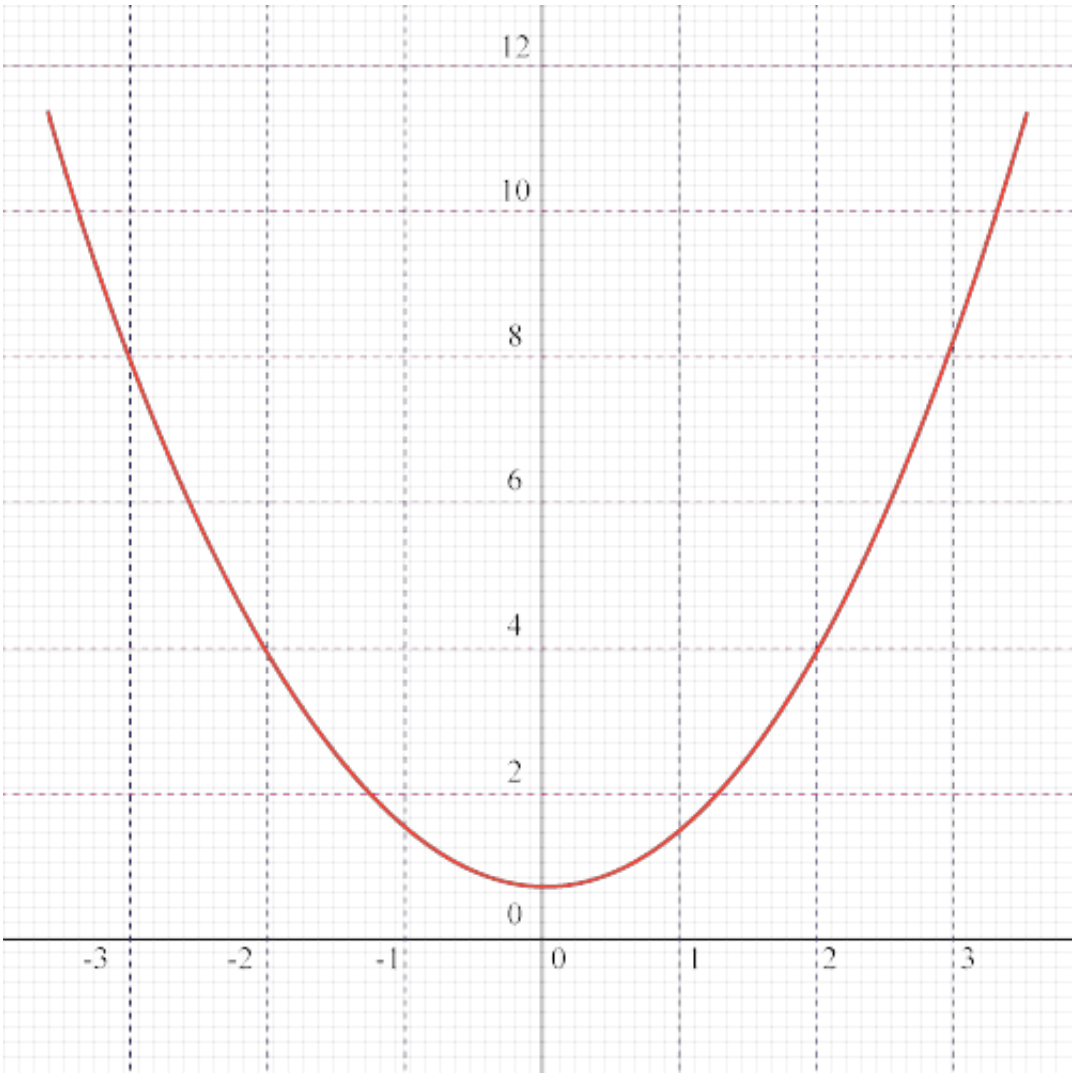
- d
- c
- a
- b

26) Tell whether the graphs below represent a function and answer the questions that follow Domain = (0, 1, 2, 3) If it is a function find the range of the function?



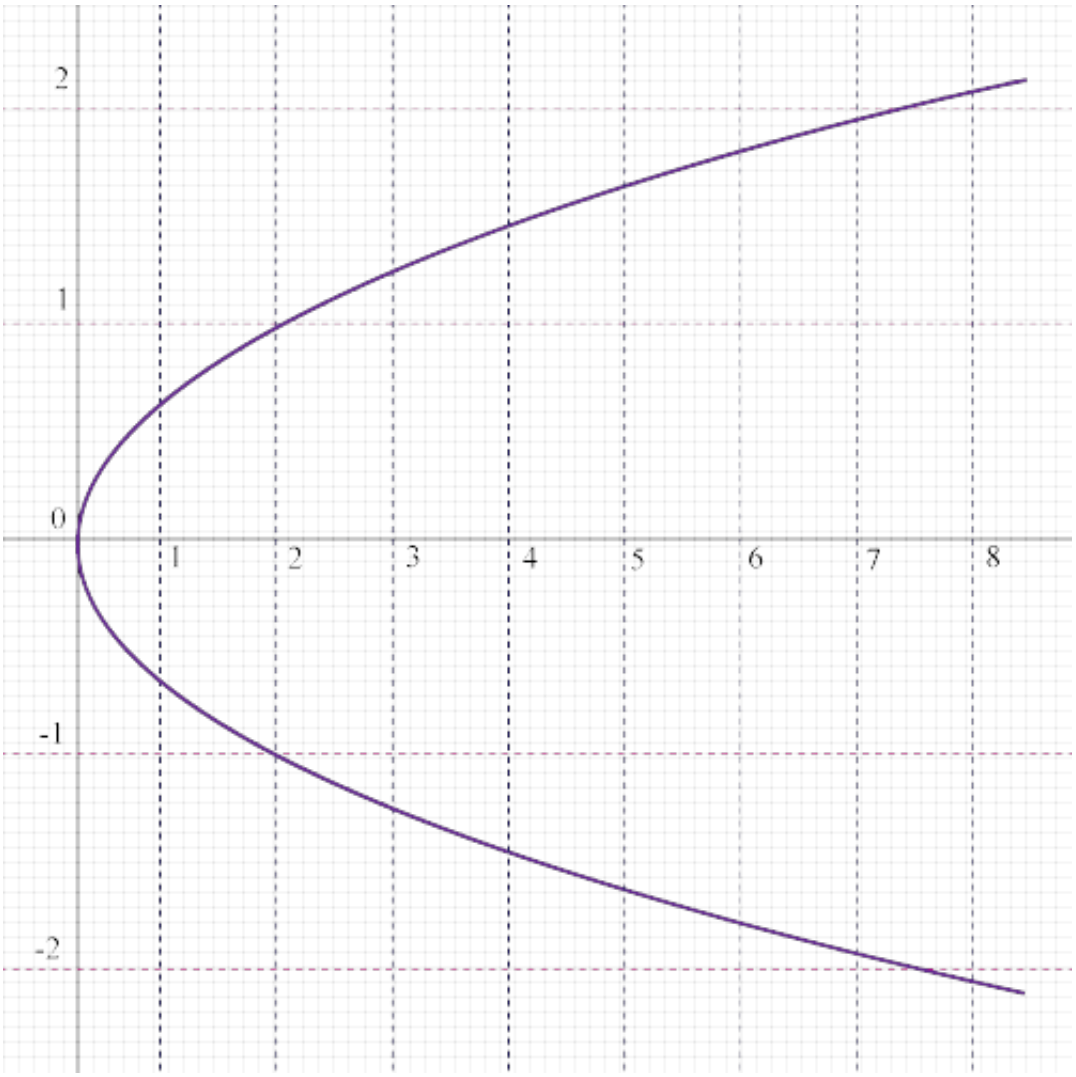
- Function Range: {-4, -1, 2, 5}
- Not a function Range: {-4, -1, 2, 5}
- Unpredictable Range: {0, 1, 2, 5}
- Data inadequate Range: {0, 1, 2, 3}

27) Tell whether the graphs below represent a function and answer the questions that follow Is it a linear function domain: (-3, -1, 0, 1, 3) find the range?



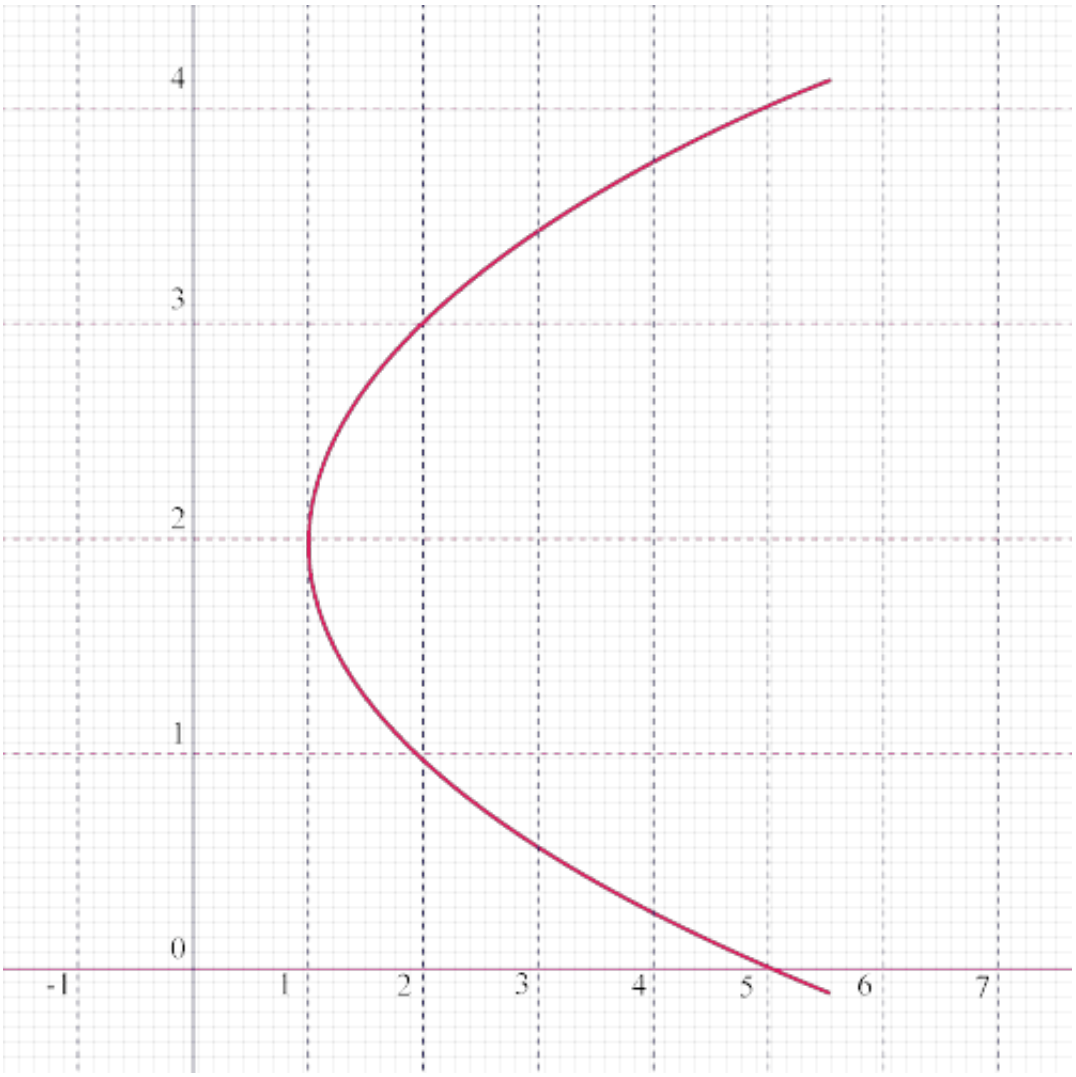
- Linear function Range: {10, 2, 1}
- Not a linear function Range: {10, 2, 1}
- Unpredictable Range: {10, 2, 1, 8}
- Data inadequate Range: {10, 2, 1, 3}

28) Tell whether the graphs below represent a function and answer the questions that follow



- Not a function
- Function
- Data inadequate
- Unpredictable

29) Tell whether the graphs below represent a function and answer the questions that follow?



- Data inadequate
- Function
- Not a function
- Unpredictable

30) Tell whether the graphs below represent a function and answer the questions that follow?

x	1	-3	-2	2	3
y					

- Data inadequate
- Not a function
- Function
- Unpredictable