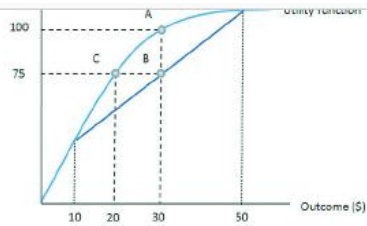


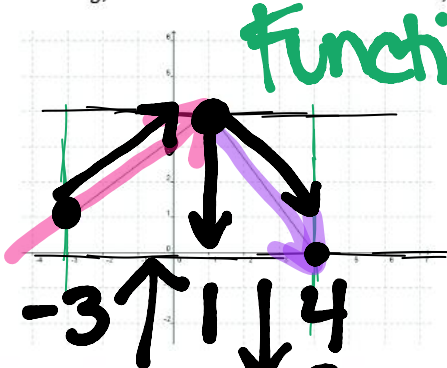
3.3 Features of Functions

A Practice Understanding Task



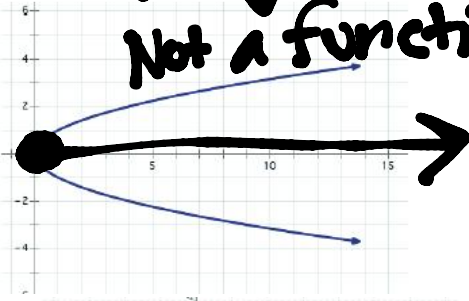
For each graph, determine if the relationship represents a function, and if so, state the key features of the function (key features include intercepts, intervals where the function is increasing or decreasing, relative maximums and minimums, symmetries, domain and range, and end behavior).

1.



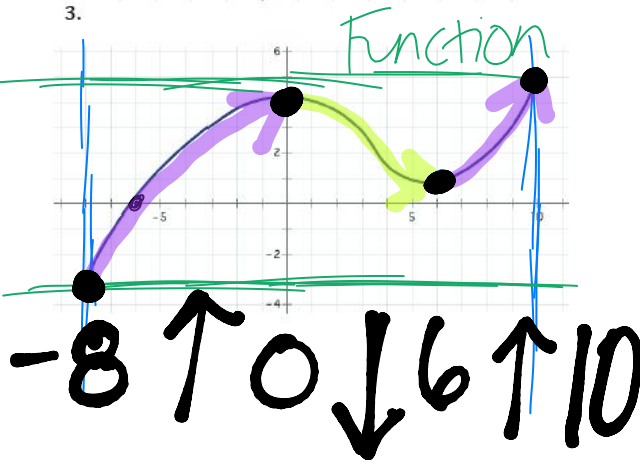
Incr: $(-3, 1)$ Decr: $(1, 4)$
 Const: none x-int: $(4, 0)$
 y-int: $(0, 3)$ Dom: $[-3, 4]$
 Range: $[0, 4]$ Abs. Max: $(1, 4)$
 Abs Min: $(4, 0)$ Rel Max: none
 Rel Min: $(-3, 1)$ EB: none

2.



Incr: Decr:
 Const: x-int:
 y-int: Dom: $[0, \infty)$
 Range: Abs. Max:
 Abs Min: Rel Max
 Rel Min: EB:

3.



Incr: $(-8, 0)$ Decr: $(0, 6)$
 $(6, 10)$
 Const: none x-int: $(-6, 0)$
 y-int: $(0, 4)$ Dom: $[-8, 10]$
 Range: $[-3, 5]$ Abs. Max: $(10, 5)$
 Abs Min: $(-8, -3)$ Rel Max: $(0, 4)$
 Rel Min: $(6, 1)$ EB: none

8. The table on the right represents a continuous function defined on the interval from $[0, 6]$.

x	$f(x)$
0	2
1	-3
2	0
3	2
4	6
5	12
6	20

Domain
 $0 \leq x \leq 6$
 $\{0, 1, 2, 3, 4, 5, 6\}$
Range
 $-3 \leq y \leq 20$
 $\{-3, 0, 2, 6, 12, 20\}$

- a) Determine the domain, range, x and y intercepts.
- b) Based on the table, identify the minimum value and where it is located.

Min \leftarrow

9. The table represents a discrete function defined on the interval from $[1, 5]$.

x	$f(x)$
1	4
2	10
3	5
4	8
5	3

Domain
 $\{1, 2, 3, 4, 5\}$
Range
 $\{3, 4, 5, 8, 10\}$

- a) Determine the domain, range, x and y intercepts.

none \rightarrow

- b) Based on the table, identify the minimum value and where it is located.

Min \leftarrow

Tell what the **domain** and **range** are for the following scenarios.

10. The amount of daylight (in hours) dependent on the month of the year.

Dom: Months Range: Daylight Hrs

12. Marcus bought a \$900 couch on a six months, interest free payment plan. He makes \$50 payments to the loan each week.

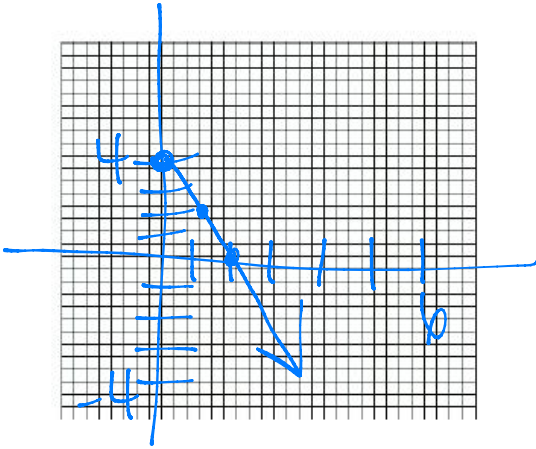
Dom: Weeks Range: \$

14. An empty 15 gallon tank is being filled with gasoline at a rate of 2 gallons per minute.

Dom: Mins Range: gallons $\frac{\text{gal}}{\text{min}}$

For each equation, sketch a graph and describe the key features of the graph.

15. $f(x) = -2x + 4$, when $x \geq 0$

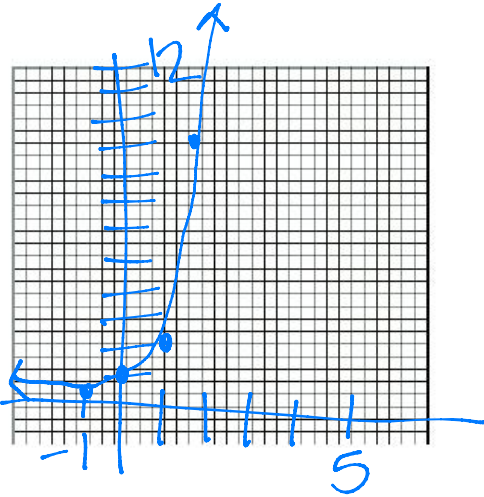


x	y
0	4
1	2
2	0
3	-2
4	-4
5	-6

Why did you start the x values at 0 here?

only worry about positive x-values

16. $g(x) = 3^x$



x	y
-1	1/3
0	1
1	3
2	9
3	27
4	81