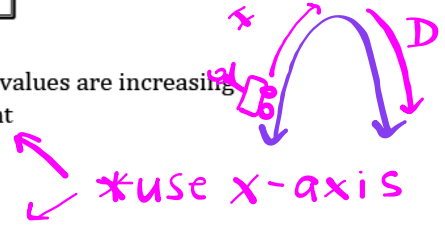


Important Parts of a Function

Increasing: the part of a graph, identified by the domain in which the "y" values are increasing

- The graph portion will be going "up" as you move from left to right



Decreasing: the part of a graph, identified by the domain in which the "y" values are decreasing

- The graph portion will be going "down" as you move from left to right

Constant: the part of a graph, identified by the domain in which the "y" value remains the same

- The graph portion will be a horizontal line as you move from left to right *flat line*

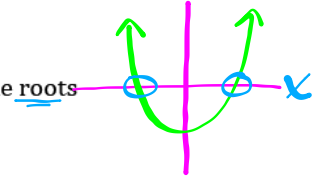
y-intercept: the point (x, y) that a graph crosses the y-axis

x-intercept: the point (x, y) that a graph crosses the x-axis

Vertex: In a quadratic function or absolute value function, the highest or lowest point (x, y)
Turning Point



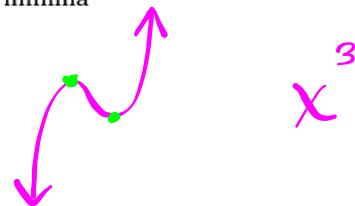
Zeroes: In a parabola (quadratic function), the x-value when $y = 0$, also known as the roots
 $x =$



Maximum: The (x, y) point for highest point of a graph (look for a peak)
 The point at which a graph changes from increasing to decreasing

Minimum: The (x, y) point for lowest point of a graph (look for a valley)
 The point at which a graph changes from decreasing to increasing

Relative Maxima or Minima: When a graph has more than one changing point, these values of change are called relative maxima or minima



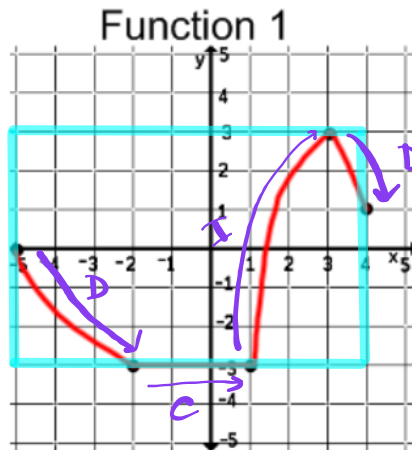
Function 1

Domain: x $[-5, 4]$ Range: y $[-3, 3]$
 $-5 \leq x \leq 4$ $-3 \leq y \leq 3$

Decreasing: $(-5, -2), (3, 4)$ Increasing: $(1, 3)$

Constant: $(-2, 1)$

Find: $f(4) = 1$ $f(-5) = 0$



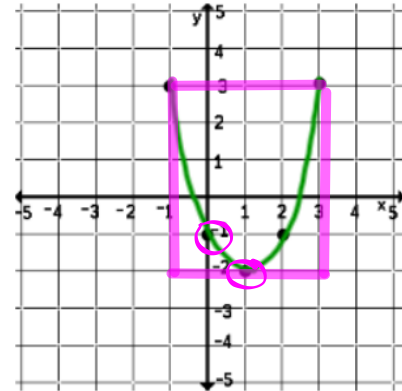
Function 2

Domain: x $[-1, 3]$ Range: y $[-2, 3]$
 $-1 \leq x \leq 3$ $-2 \leq y \leq 3$

Vertex: **Turning Point** $(1, -2)$ y-intercept: $(0, -1)$

Find: $f(2) = -1$ $f(0) = -1$ $f(-1) = 3$

Function 2



Function 3

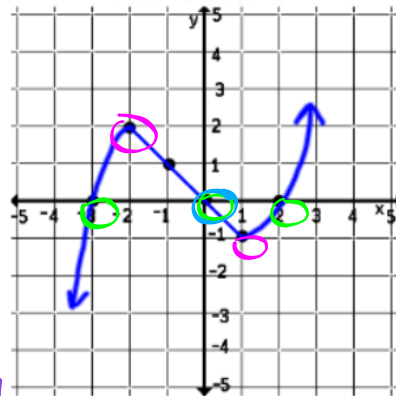
Domain: $(-\infty, \infty)$ Range: $(-\infty, \infty)$

Relative maxima: $(-2, 2)$ Relative minima: $(1, -1)$

x-intercept(s): $(-3, 0), (0, 0), (2, 0)$ y-intercept: $(0, 0)$

Find: $f(-2) = 2$ $f(2) = 0$ $f(1) = -1$

Function 3



Zeros/Roots:

$x = -3$
 $x = 0$
 $x = 2$

Graph the following functions and answer a-e below:

- a) identify the type of function as constant, linear, quadratic, square root, absolute value, polynomial, or rational.
- b) sketch the function (make an x/y table if you need to)
- c) Find $f(2)$
- d) state the domain
- e) state the range

1. $f(x) = x^2 - 6x + 8$

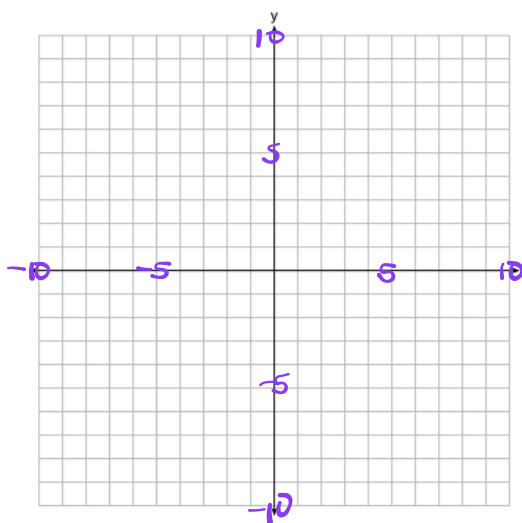
Quadratic

x	f(x)
0	
1	
2	
3	
4	
5	
6	

$f(2) =$

Domain:

Range:



2. $h(x) = 2x + 4$

