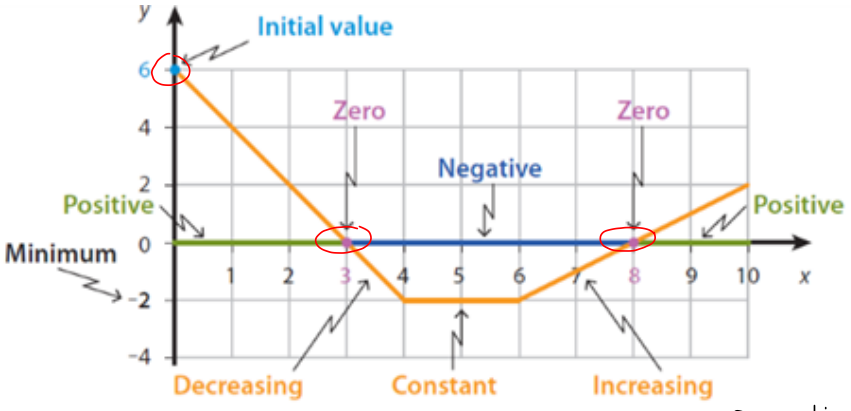
LESSON SEVEN

DETERMINING AND INTERPRETING THE PROPERTIES OF A PIECEWISE FUNCTION (COMPOSED OF A CONSTANT, LINEAR, AND QUADRATIC FUNCTION)

Example 1: Determine the properties of the following function shown in the below graph:



i - ii

Domain: the set of x-values the function has: [0, 10]

(set) (group) interval notation

lowest # highest #

Co Domain: the set of y-values the function has: [-2, 6]

Range

y-intercept: the point where the function touches/intercepts the y-axis: (0, 6)

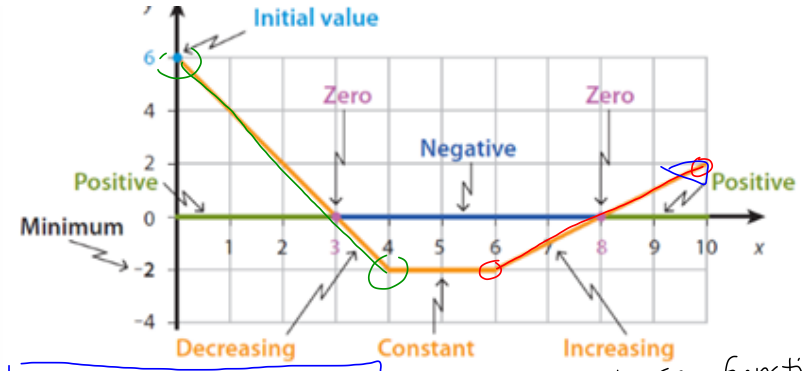
initial value of function (y)

f(0) → the y value when x = 0: f(0) = 6

x-intercept(s): the point(s) where function touches x-axis: (3, 0) (8, 0)

zeros of function

f(x) = 0 → x = 3 or x = 8



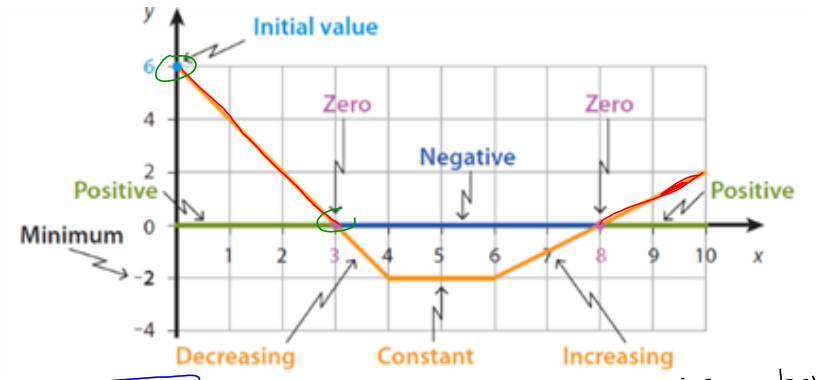
increasing interval of function : L to R, where function goes up.
: as $x \uparrow$, $y \uparrow$

★ interval in terms of x-values.

$[6, 10]$

decreasing int of function : L to R, function goes down.
: as $x \uparrow$, $y \downarrow$

$[0, 4]$



answer in terms of x-values

positive interval of function

∴ where the function is above the x-axis.

∴ where the y's are positive : $[\ ,\ ]$

$[0, 3] \cup [8, 10]$

negative interval of function

∴ where the function is below the x-axis

∴ where the y's are negative : $[\ ,\ ]$

$[3, 8]$

minimum (or) (and) maximum of function

∴ lowest or highest point → give y-value.

HMWK

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pg 23 # 3 not a) pg 55 # 5

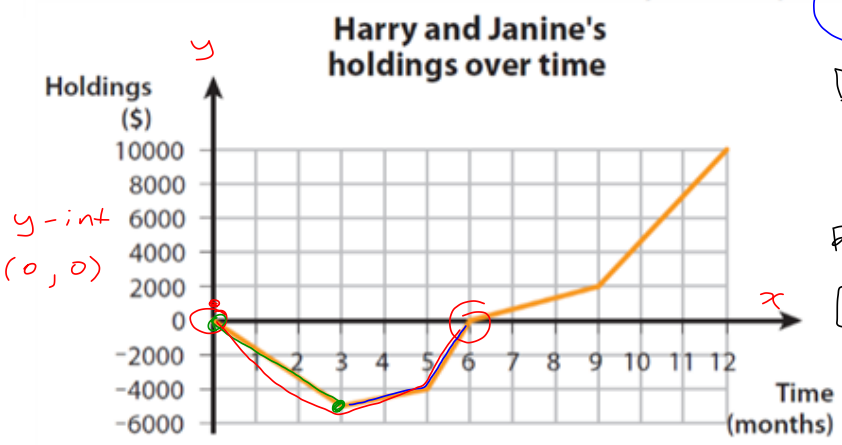
pg 83 # 7 not a)

↳ Equation is $f(x) = 425x^2$

Question 1:

Harry and Janine have decided to carry out their plan of opening a restaurant.

The graph below illustrates the situation during the first year of their plan.



iii – v.

Do vi. vii

Domain

[0, 12] month

Range

[-5000, 10000] $

y

x

y-int (0, 0)