Lesson Six

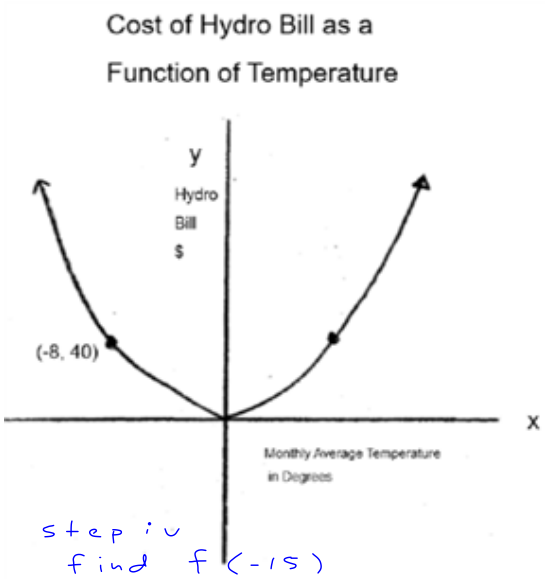
Determining the Equation of An Quadratic Functions and Piecewise Functions

Example 1: Hydro Quebec sends you a letter with a graph showing how your hydro bill fluctuates depending on the temperature.

How much will your bill come to if this month the average temperature was -15 degrees?

$? = y

x



step i. identify which function

$f(x) = ax^2$

step ii find last parameter by subbing in point

$(-8, 40)$
x y

$y = ax^2$

$40 = a(-8)^2$ evaluate

$\frac{40}{64} = \frac{a \cdot 64}{64}$ solve for a

o.o.

$a = \frac{5}{8}$

$a = 0.625$

$\therefore y = 0.625x^2$

$f(x) = 0.625x^2$

step iii sub a into equation.

step iv find f(-15)

find the y when x = -15

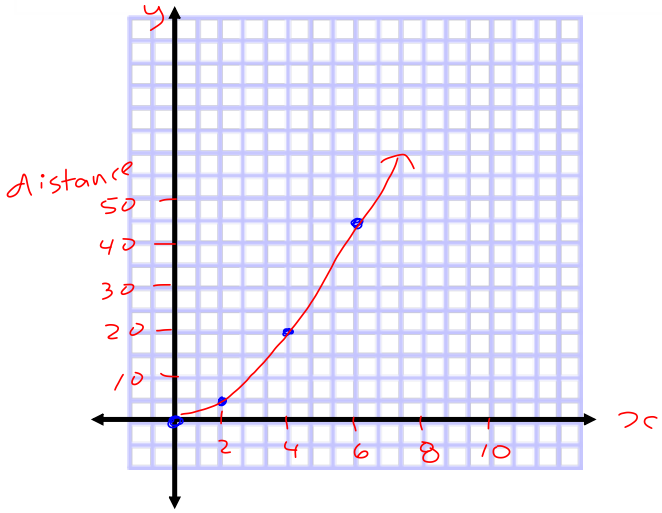
$f(x) = 0.625x^2$

$f(-15) = 0.625(-15)^2$

$f(-15) = 140.625$ $

∴ your bill costs $140.63

Question 1: Alexandra just bought a new car, and she decides to take it out for a test run. She notes the distance travelled according to the elapsed time.

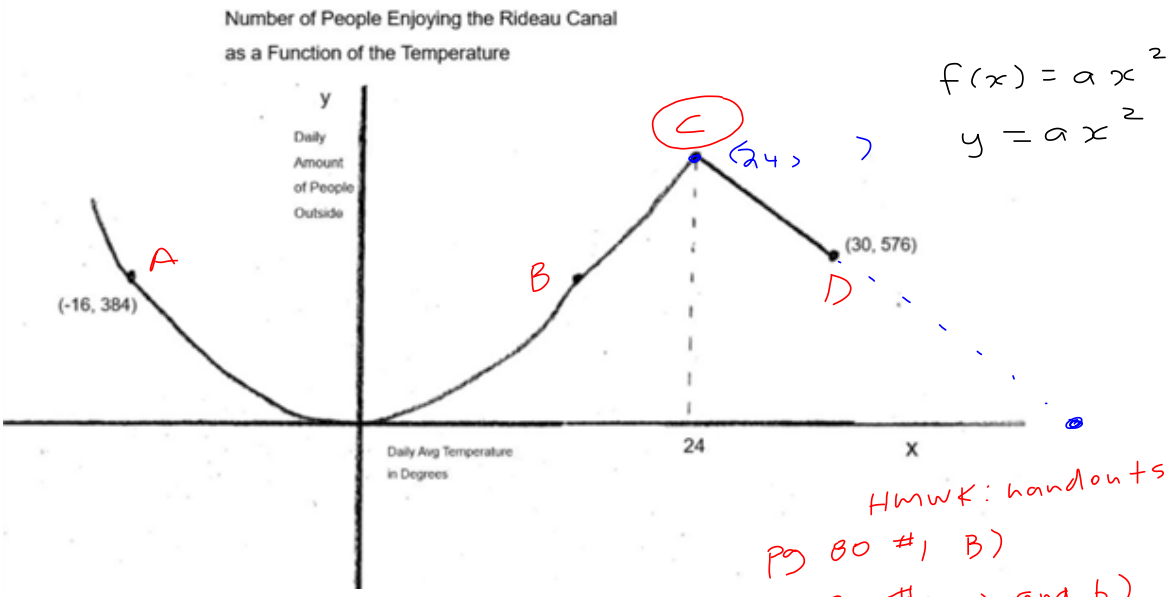


Distance travelled as a function of time

Time (s)	Distance (m)
0	0
2	5
4	20
6	45
8	80
10	125

DETERMINING THE EQUATION OF A PIECEWISE FUNCTION

Example 1: Employees at Parks Canada noted the number of visitors at Ottawa's Rideau Canal for the year 2018. They constructed a graph that shows how the daily amount of people fluctuated according to the temperature. Climate activist would like to use this data to show government officials that nobody can enjoy the weather when the temperature is 42 degrees or more. If the linear trend in the graph continues are the climate activist correct?



$f(x) = ax^2$

$y = ax^2$

Hmwk: handouts

pg 80 #1 B)

pg 81 #3 a) and b)

pg 82 #6 b) c) / pg 84 #9 b) c)