"The Apple Bin"

Apple Assignment #1

You have 12 apples and an empty bin. Every 3 seconds apples are put in the bin. The bin is filled by putting in 2 apples at a time.

(a) Fill in the following chart with the total number of apples that are in the bin at each time interval

# apples	0	2	4				
time (s)	0	3	6	9	12	15	18

(b) Sketch a graph comparing # of apples in the bin vs time.

(c) Find the average rate of change for three time intervals:

$t \in [3,6]$ $t \in [6,9]$ $t \in [9,12]$

(d) Is this function increasing or decreasing?

(e) Is the rate of change increasing or decreasing?

(f) Describe the concavity of the function.

Apple Assignment #2

You have 25 apples and an empty bin. Every 3 seconds apples are put in the bin. The bin is filled by putting in 1 apple, then 3 apples, then 5 apples, then 7 apples and then 9 apples.

(a) Fill in the following chart with the total number of apples that are in the bin at each time interval

# apples						
time (s)	0	3	6	9	12	15

(b) Sketch a graph comparing # of apples in the bin vs time.

(c) Find the average rate of change for three time intervals:

$t \in [3,6]$ $t \in [6,9]$ $t \in [9,12]$

(d) Is this function increasing or decreasing?

(e) Is the rate of change increasing or decreasing?

(f) Describe the concavity of the function.

Apple Assignment #3

You have 25 apples and an empty bin. Every 3 seconds apples are put in the bin. The bin is filled by putting in 9 apples, then 7 apples, then 5 apples, then 3 apples and then 1 apple.

(a) Fill in the following chart with the total number of apples that are in the bin at each time interval

# apples						
time (s)	0	3	6	9	12	15

(b) Sketch a graph comparing # of apples in the bin vs time.

(c) Find the average rate of change for three time intervals:

$t \in [3,6]$ $t \in [6,9]$ $t \in [9,12]$

(d) Is this function increasing or decreasing?

(e) Is the rate of change increasing or decreasing?

(f) Describe the concavity of the function.

Apple Assignment #4

You have 25 apples in a bin. Every 3 seconds apples are removed from the bin. The apples are removed by taking 1 apple, then 3 apples, then 5 apples, then 7 apples and then 9 apples.

(a) Fill in the following chart with the total number of apples that are in the bin at each time interval

# apples						
time (s)	0	3	6	9	12	15

(b) Sketch a graph comparing # of apples in the bin vs time.

(c) Find the average rate of change for three time intervals:

$t \in [3,6]$ $t \in [6,9]$ $t \in [9,12]$

(d) Is this function increasing or decreasing?

(e) Is the rate of change increasing or decreasing?

(f) Describe the concavity of the function.

Apple Assignment #5

You have 25 apples in a bin. Every 3 seconds apples are removed from the bin. The apples are removed by taking 9 apples, then 7 apples, then 5 apples, then 3 apples and then 1 apple.

(a) Fill in the following chart with the total number of apples that are in the bin at each time interval

# apples						
time (s)	0	3	6	9	12	15

(b) Sketch a graph comparing # of apples in the bin vs time.

(c) Find the average rate of change for three time intervals:

$t \in [3,6]$ $t \in [6,9]$ $t \in [9,12]$

(d) Is this function increasing or decreasing?

(e) Is the rate of change increasing or decreasing?

(f) Describe the concavity of the function.