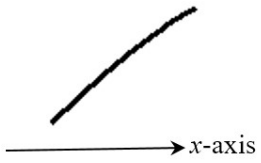
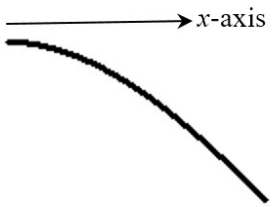
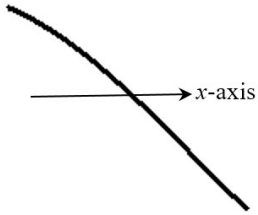
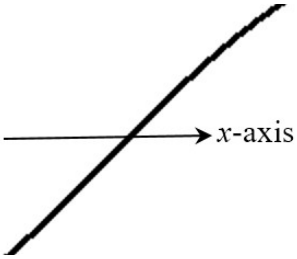
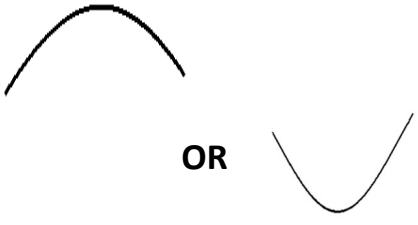
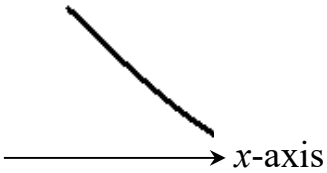
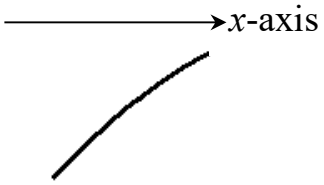
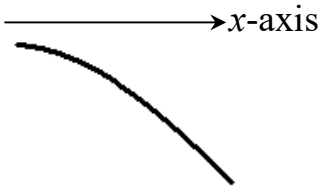
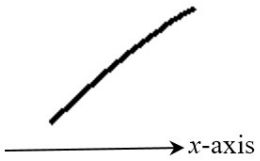
TEACHER'S COPY & SOLUTION

Function's feature	Derivative's graph (sketch)	Justification: The first derivative …
Function is increasing		**… is positive**
Function is decreasing		**… is negative**
Function has relative maximum		**… changes sign from positive to negative**
Function has relative minimum		**… changes sign from negative to positive**
Function has point of inflection	 **OR**	**… has relative minimum or relative maximum**

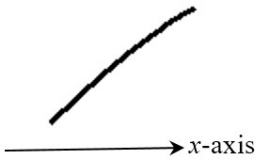
Function is concave up		**… is increasing**
Function is concave down		**… is decreasing**
The four basic shapes of the graph of a function		
Function is increasing & concave up		**… is positive and increasing**
Function is increasing & concave down		**… is positive and decreasing**
Function is decreasing & concave up		**… is negative and increasing**
Function is decreasing & concave down		**… negative and decreasing**

Group A – DIRECTIONS: Fill in the missing information. Notice that the first column refers to the *function* and the second and third column refer to the *first derivative* of the function.

Function's feature	**Derivative's graph (sketch)**	**Justification: The first derivative …**
Function is increasing		**… is positive**
Function is decreasing		
Function has relative maximum		
Function has relative minimum		
Function has point of inflection	**OR**	

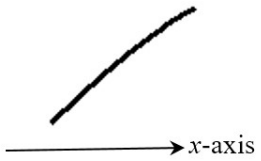
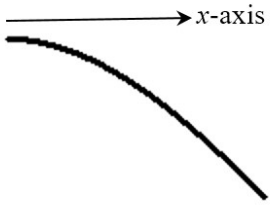
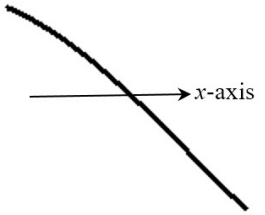
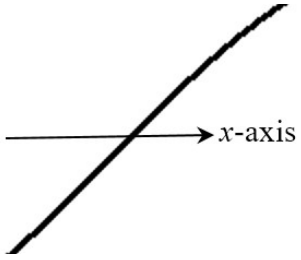
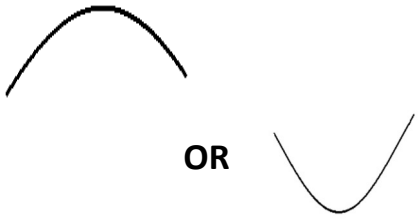
Function is concave up		
Function is concave down		
The four basic shapes of the graph of a function		
Function is increasing & concave up		
Function is increasing & concave down		
Function is decreasing & concave up		
Function is decreasing & concave down		

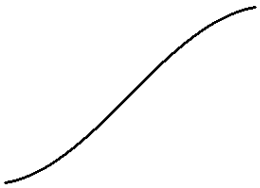
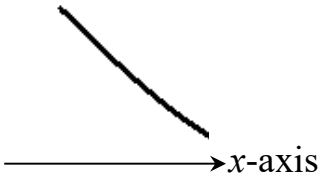
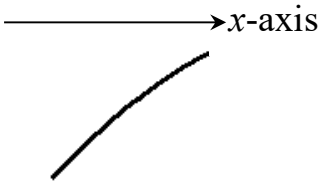
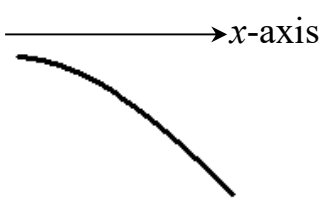
Group B– DIRECTIONS: Fill in the missing information. Notice that the first column refers to the *function* and the second and third column refer to the *first derivative* of the function.

Function's feature	**Derivative's graph (sketch)**	**Justification: The first derivative …**
Function is increasing		**… is positive**
		… is negative
		… changes sign from positive to negative
		… changes sign from negative to positive
	OR	**… has relative minimum or relative maximum**

		… is increasing
		… is decreasing
The four basic shapes of the graph of a function		
		… is positive and increasing
		… is positive and decreasing
		… is negative and increasing
		… negative and decreasing

Group C – DIRECTIONS: Fill in the missing information. Notice that the first column refers to the *function* and the second and third column refer to the *first derivative* of the function.

Function's feature	**Derivative's graph (sketch)**	**Justification: The first derivative …**
Function is increasing		**… is positive**
		
		
		
		

		
The four basic shapes of the graph of a function