Graphing Puzzles Using the First and Second Derivatives – Class Handout

Use the information on each line to fill in the remaining columns. A couple of examples are provided for you.

GRAPH A

Interval	Description in words	Description in symbols	Sketch
1	concave up and increasing		
2	concave down and increasing	$f''(x) < 0$ and $f'(x) > 0$	
3	zero concavity and decreasing		
4	zero slope		
5	zero concavity and increasing		

GRAPH B

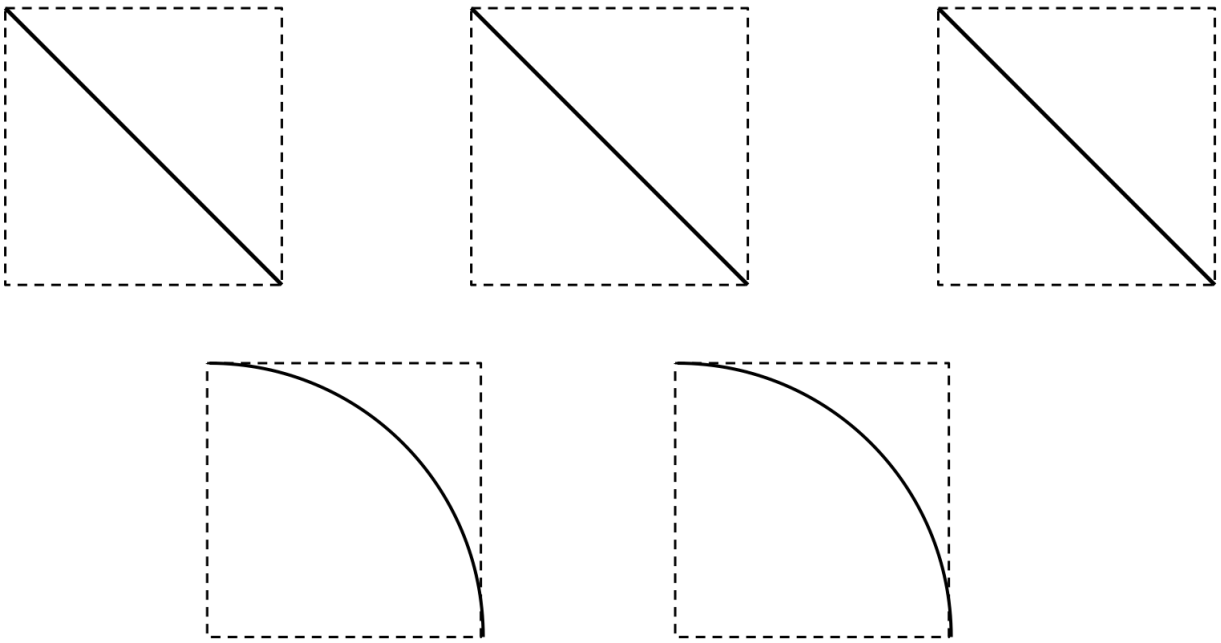
Interval	Description in words	Description in symbols	Sketch
1		$f''(x) = 0$ and $f'(x) > 0$	
2		$f''(x) = 0$and $f'(x) < 0$	
3		$f''(x) > 0$ and $f'(x) < 0$	
4	concave down & decreasing	$f''(x) < 0$ and $f'(x) < 0$	
5		$f'(x) = 0$	

GRAPH C

Interval	Description in words	Description in symbols	Sketch
1	concave down and increasing		
2			
3		$f'(x) = 0$	
4		$f''(x) = 0$ and $f'(x) > 0$	
5	decreasing and zero concavity		

Now that you've completed the tables, assemble the graphs of each of the **continuous** functions described. After completing each graph, verify your answer with your instructor.

Linear and Curved Puzzle Pieces for the Handout



Linear and Curved Puzzle Pieces for the Handout