Chapter 2 Section 5

MA1032 Data, Functions & Graphs

Sidney Butler

Michigan Technological University

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Revisiting Rate of Change

What do we know about the rate of change of a straight line?

Example

Consider the distance (in miles) traveled by two cyclists, Mike and Colby, as a function of time (t in hours).

Mike	
t (hrs)	d (mi)
0	0
1	16
2	35
3	58
4	85

Colby	
t (hrs)	d (mi)
0	0
1	30
2	52
3	72
4	91

Exercise

Mike		
t (hrs)	d (mi)	$\frac{\Delta d}{\Delta t}$
0	0	
1	16	
2	35	
3	58	
4	85	

Colby		
t (hrs)	d (mi)	$\frac{\Delta d}{\Delta t}$
0	0	
1	30	
2	52	
3	72	
4	91	

Graphs

Concavity

- Increasing & concave up
- Increasing & concave down
- Decreasing & concave up
- Decreasing & concave down

Summary

- Relationship between the behavior of the rate of change of a function and the concavity of the function's graph.