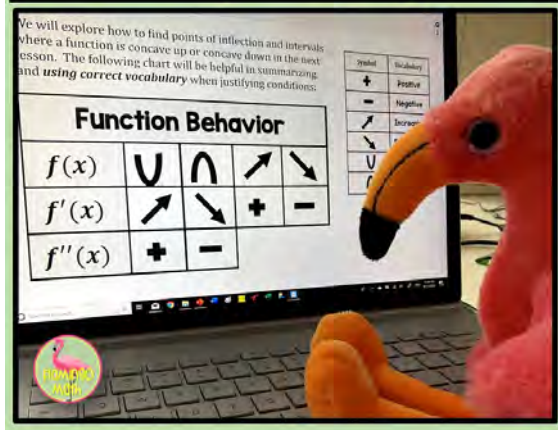


FUNCTION BEHAVIOR & Graph Analysis



Function Behavior & Graph Analysis Infographics and Practice Sets

Help your AP Calculus students learn to use appropriate language for justification and graph analysis.

This activity is designed to challenge your **AP Calculus** students by engaging them in conversations related to Curve Sketching, explanations and justifications related to function behavior on a given graph.

Function Behavior & Graph Analysis

College Board® Topics:

Topic 5.9: Connecting a Function, Its First Derivative, and Its Second Derivative

The **Function Behavior & Graph Analysis Activity** includes two different one-page analysis given a function graph, its first derivative, and its second derivative to make connections for behavior from reading any of the 3 representations. There is a **Function Behavior Infographic** designed to help your students focus on using appropriate language. There is an answer key included for the activity.

Students will practice the following skills:

- ☒ Given a function graph, a derivative graph, and a second derivative graph, analyze key features of each function using appropriate language based on the given function.



Infographic or INB Page

HOT TOPIC: GRAPH ANALYSIS

FUNCTION BEHAVIOR

This chart works for any piece of given information about a function. Find given data to start, follow the flow of information to use the appropriate vocabulary when justification is required.

Function Behavior		
$f(x)$	U	∩
$f'(x)$	-	+
	Concave Up	Concave Down

Vocabulary for Motion Problems					
position		velocity		acceleration	
$f(x)$	$s(t)$	$f'(x)$	$v(t)$	$f''(x)$	$a(t)$

© Flamingo Math™ All rights reserved

FUNCTION BEHAVIOR

This chart works for any piece of given information about a function. Find given data to start, follow the flow of information to use the appropriate vocabulary when justification is required.

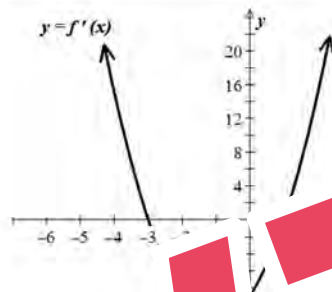
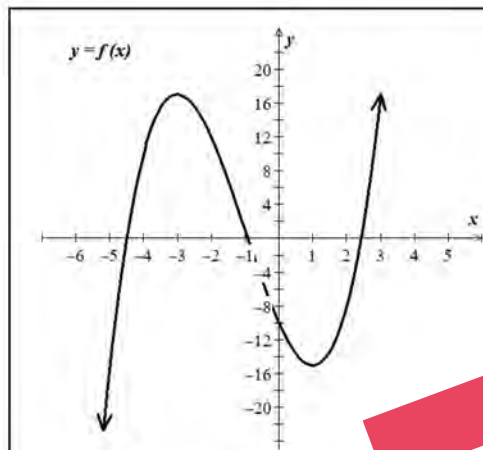
Function Behavior		
$f(x)$	U	∩
$f'(x)$	-	+
	Concave Up	Concave Down

Vocabulary for Motion Problems					
position		velocity		acceleration	
$f(x)$	$s(t)$	$f'(x)$	$v(t)$	$f''(x)$	$a(t)$

© Flamingo Math™ All rights reserved

HOT TOPIC: GRAPH ANALYSIS

Practice



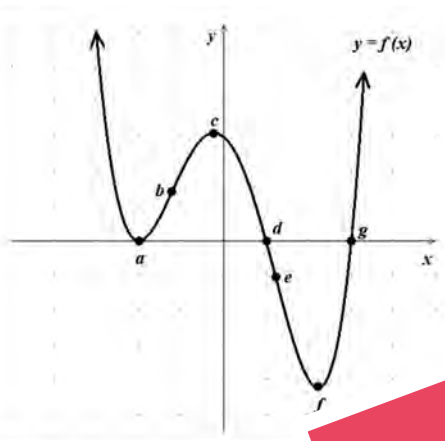
1. The graph of $f(x)$ is concave up on the interval $[-5, 1]$ and concave down on the interval $[1, 3]$.
 2. $f(x)$ has a local maximum at $x = -3$ and a local minimum at $x = 2$.
 3. The graph of $f'(x)$ is above the x-axis on the interval $[-5, 1]$ and below the x-axis on the interval $[1, 3]$.
 4. The graph of $f''(x)$ is above the x-axis on the interval $[-5, 1]$ and below the x-axis on the interval $[1, 3]$.
 5. The graph of $f(x)$ is concave down on the interval $[1, 3]$, so the graph of $f'(x)$ will be decreasing on the interval $[1, 3]$.

6. $f'(x)$ is positive on the interval $[-5, 1]$ and negative on the interval $[1, 3]$.
 7. $f(x)$ is increasing on the interval $[-5, 1]$ and decreasing on the interval $[1, 3]$.
 8. $f(x)$ is concave up on the interval $[-5, 1]$ and concave down on the interval $[1, 3]$.
 9. $f'(x)$ is negative on the interval $[1, 3]$.
 10. The x-value of the absolute min of $f'(x)$ is a local minimum on $f(x)$ and a local maximum on $f''(x)$.

11. The graph of $f''(x)$ is above the x-axis, then $f'(x)$ is increasing on the interval $[-5, 1]$ and the graph of $f(x)$ will be concave up on the interval $[-5, 1]$.
 12. The zero of $f''(x)$ is a local maximum on the graph of $f'(x)$. On the graph of $f(x)$, the zero of $f''(x)$ is where the concavity changes, because the graph of $f'(x)$ changes from increasing to decreasing.

Practice

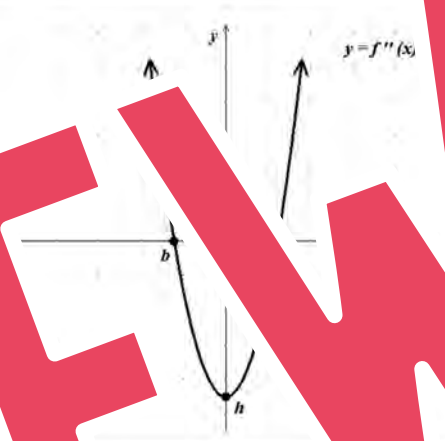
PREVIEW



Graph of $y = f(x)$ with points a, b, c, d, e, f, g marked.



Graph of $y = f'(x)$ with points a, b, c, d, e marked.



Graph of $y = f''(x)$ with point h marked.

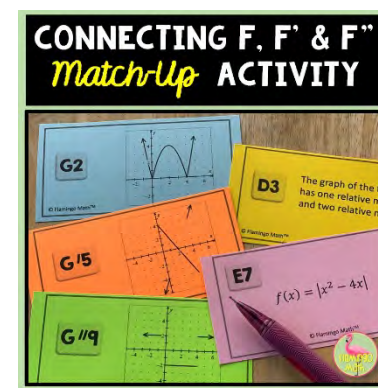
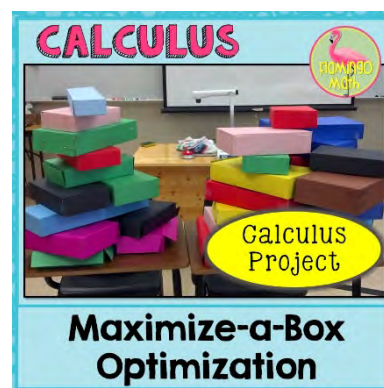
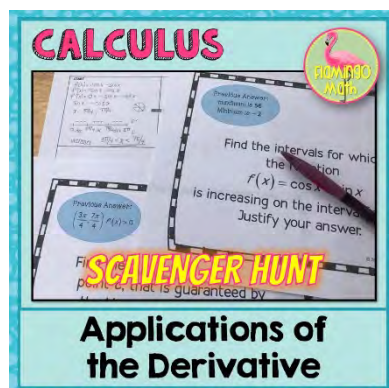
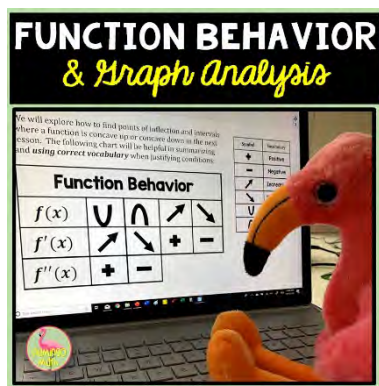
© Jean Adams Flamingo Math™, LLC



My goal is to help you bring balance into your teacher life by providing relevant content, engaging activities, and comprehensive assessments for your high-stakes math course.



More Resources for YOU



Let's keep in touch! I'm here for you!



I appreciate your support and interest in my store.
Please email me with questions or comments:
jean@flamingomath.com

Sign up for my Newsletter to
gain access to an Exclusive
FREE Resource Library!

