

# Today's Plan:

**Learning Target (standard):** I will graph derivatives of functions and describe their properties.

**Students will:** Complete practice problems over previous concepts at the boards, put up homework problems on the board and make necessary corrections to their own work, take notes over new material and complete practice problems over new concepts.

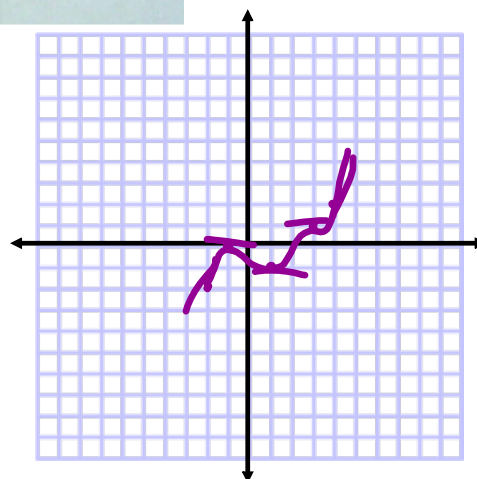
**Teacher will:** Provide practice problems over previous concepts, check homework problems for accuracy and provide students feedback, describe and provide examples of new concepts and assign students assessment problems over new concepts.

**Assessment:** Board work, homework check and homework assignment

**Differentiation:** Students will work at the board, go over and correct homework at their seats, actively engage in lecture over new concepts, practice new concepts with the aid of other students and the teacher and complete homework assignment.

$x$	-2	-1	1	3	4
$f(x)$	-2	0	-1	1	2
$f'(x)$	2	0	0	0	3

Slope of tangent line



21. The graph of the derivative of a function  $g$  is shown in the figure below.

- On which intervals is  $g$  increasing?
- Where does  $g$  have critical points?
- Where does  $g$  have a local maximum?
- Suppose  $g(0) = 0$ . Sketch a possible graph of  $g$ .

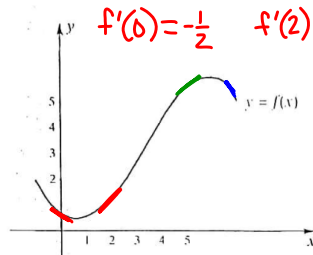
31. Sketch a graph of the derivative function of each given function

Scanned with CamSca

$y = f(x)$

Scanned with CamScanner

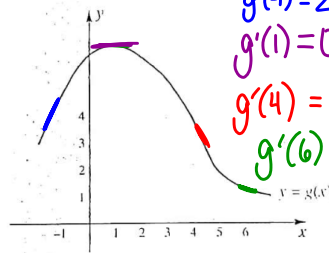
37. From Figure 5, estimate  $f'(0)$ ,  $f'(2)$ ,  $f'(5)$ , and  $f'(7)$ .



$f'(0) = -\frac{1}{2}$     $f'(2) = 1$     $f'(5) = \frac{2}{3}$   
 $f'(7) = -3$

Figure 5

38. From Figure 6, estimate  $g'(-1)$ ,  $g'(1)$ ,  $g'(4)$ , and  $g'(6)$ .



$g'(-1) = 2$   
 $g'(1) = 0$   
 $g'(4) = -2$   
 $g'(6) = -\frac{2}{3}$

Figure 6

39. Sketch the graph of  $y = f'(x)$  on  $-1 < x < 7$  for function  $f$  of Problem 37.

40. Sketch the graph of  $y = g'(x)$  on  $-1 < x < 7$  for function  $g$  of Problem 38.

Scanned with CamScanner

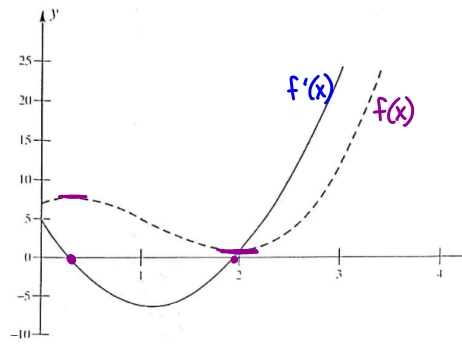
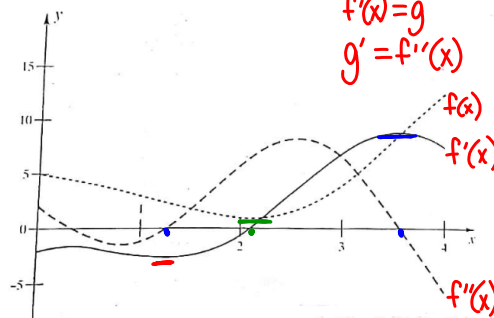


Figure 8

45. Figure 9 shows three functions. One is the function  $f(x)$ , the other is its derivative  $f'$ , which we will call  $g$ ; and the third is the derivative of  $g$ . Which one is which?



$f(x)$   
 $f'(x) = g$   
 $g' = f''(x)$

Scanned with

# Assignment:

"Group Work 3"

The Derivative Function

#1-8