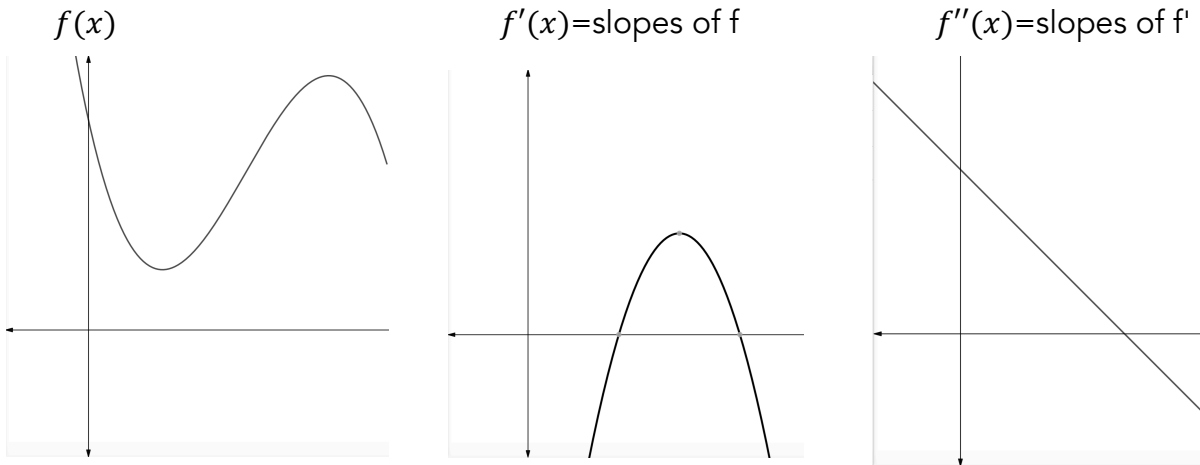
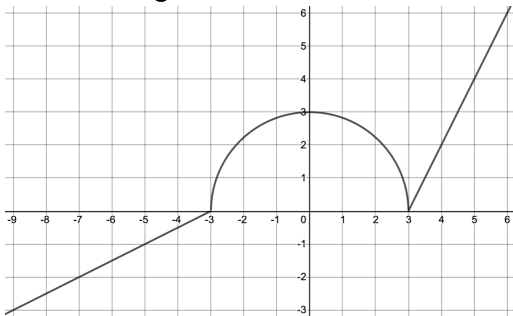


## Video 5.2 Connecting $f$ , $f'$ , and $f''$



$f(x)$	$f'(x)$	$f''(x)$
$f(x)$ is increasing		
$f(x)$ is decreasing		
$f(x)$ has a relative maximum		
$f(x)$ has a relative minimum		
$f(x)$ is concave down		
$f(x)$ is concave up		
$f(x)$ has a point of inflection		

Example 1: The graph of  $h'(x)$ , the derivative of  $h(x)$  is shown below for  $-9 \leq x \leq 6$  and consists of a semicircle and two line segments.



AP Exam Tips:

- On which open intervals is  $h(x)$  decreasing? Justify your answer.
- For which values of  $x$  does  $h(x)$  have a relative minimum? Justify your answer.
- For which values of  $x$  does  $h(x)$  have a point of inflection? Justify your answer.