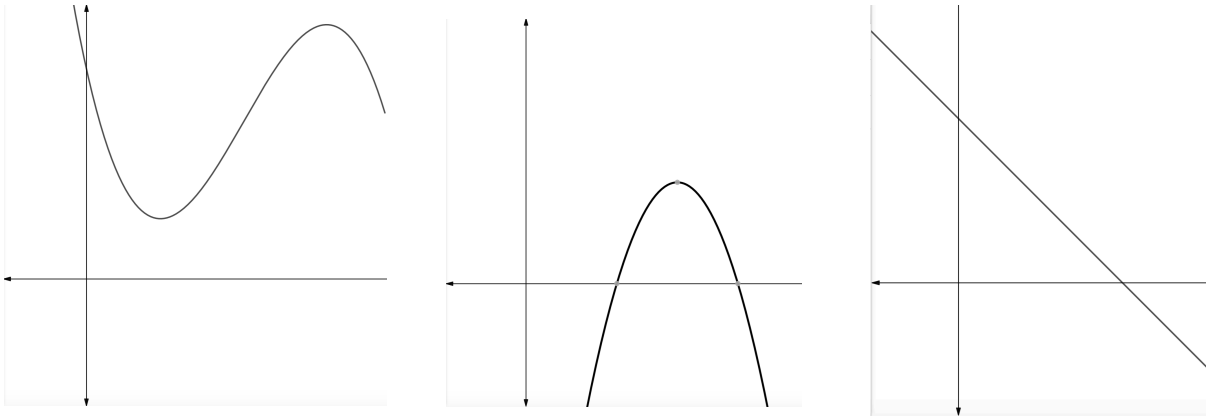
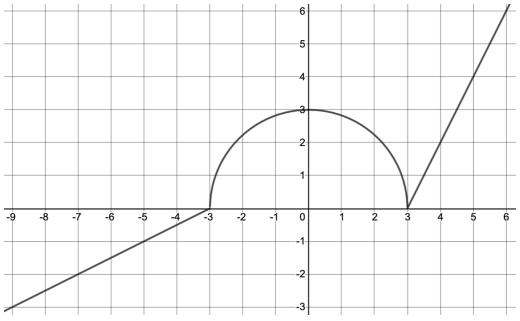
Video 5.2 Connecting Derivatives

$f(x)$ $f'(x)$=slopes of f $f''(x)$=slopes of f'



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



a) On which open intervals is $h(x)$ decreasing? Justify your answer.

b) For which values of x does $h(x)$ have a relative minimum? Justify your answer.

c) For which values of x does $h(x)$ have a point of inflection? Justify your answer.

AP Exam Tips: