

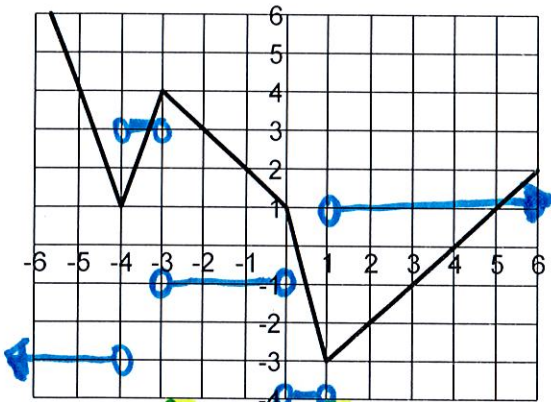
Notes: Derivative as a Function

Example(s) 1:

For the function given, arrange the following numbers from least to greatest.

- A.)  $f'(-5)$ ,  $f'(-3.5)$ ,  $f'(-2)$ ,  $f'(1.5)$ ,  $f'(3)$  &  $f(4)$   
 B.) Sketch a graph of the derivative on top of  $f(x)$ .

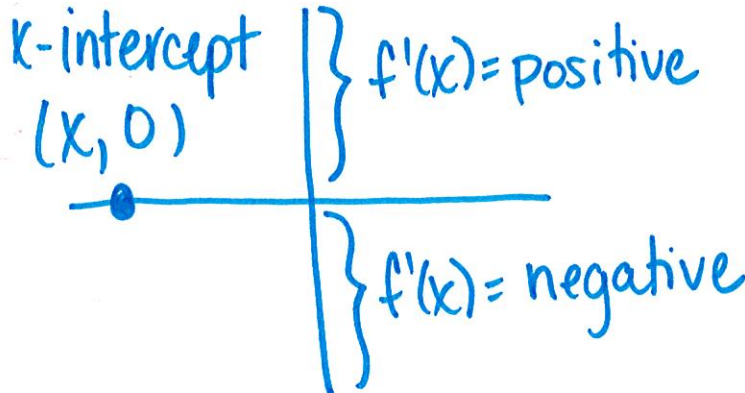
A)  $f'(\frac{1}{2}) < f'(-5) < f'(-2) < f(4) < f'(3) < f'(-3.5)$



$f'(x) = \text{undefined}$

$-\infty$   $f' = -3$   $-4$   $3$   $-1$   $0$   $-4$   $f' = 1$   $+\infty$

What do you know about $f(x)$ ?	What does it tell you about $f'(x)$ ?
1. corner, cusp, vertical tangent, or discontinuity	1. $f'(x) = \text{undefined}$
2. max or min	2. $f'(x) = 0$ (x-intercept)
3. Increasing	3. $f'(x) = \text{positive}$ (above-x-axis)
4. Decreasing	4. $f'(x) = \text{negative}$ (below-x-axis)



Example(s) 2:

Sketch the graph of  $f'(x)$  given the graph of  $f(x)$ .

