DATE: _____

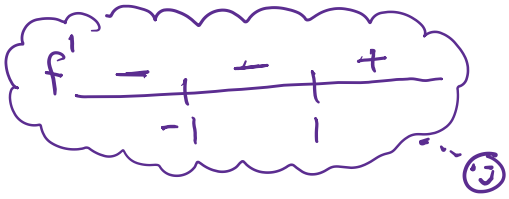
x	-2	$-2 < x < -1$	-1	$-1 < x < 1$	1	$1 < x < 3$	3
$f(x)$	12	Positive	8	Positive	2	Positive	7
$f'(x)$	-5	Negative	0	Negative	0	Positive	$\frac{1}{2}$
$g(x)$	-1	Negative	0	Positive	3	Positive	1
$g'(x)$	2	Positive	$\frac{3}{2}$	Positive	0	Negative	-2

The twice-differentiable functions f and g are defined for all real numbers x. Values of f, f', g, and g' for various values of x are given in the table above.

a) Find the x-coordinate of each relative minimum of f on the interval $[-2,3]$ Justify your answers.

f has a rel. min @ x=1 b/c

f' changes from neg to pos @ x=1



b) The function h is defined by $h(x) = \ln(g(x))$. Determine the x-coordinate of each relative minimum and maximum of h on the interval $[-2,3]$.

$h'(x) = g'(x) \cdot \frac{1}{g(x)}$

$= \frac{g'(x)}{g(x)}$

critical #s

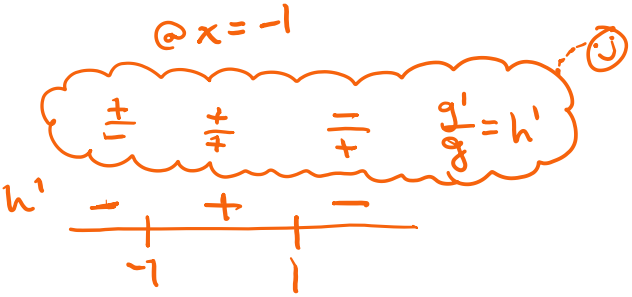
$\frac{g'(x)}{g(x)} = 0$

$g'(x) = 0$

@ $x = 1$

$\frac{g'(x)}{g(x)}$ DNE when $g(x) = 0$

@ $x = -1$



h has rel. min @ x = -1 b/c

h' changes from neg to pos @ x = -1.

h has rel. max @ x = 1 b/c h' changes from pos to neg @ x = 1.