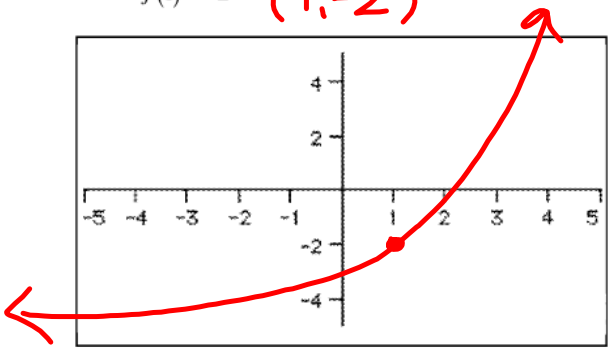
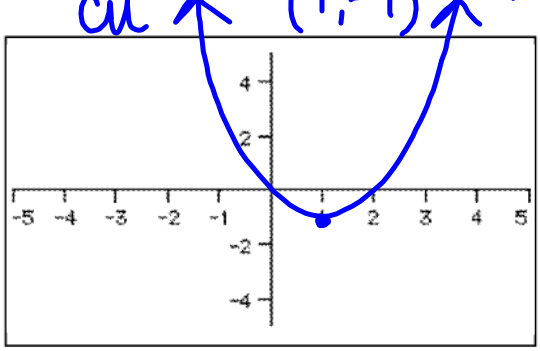
Example 4) Sketch a possible $f(x)$ given the following information.

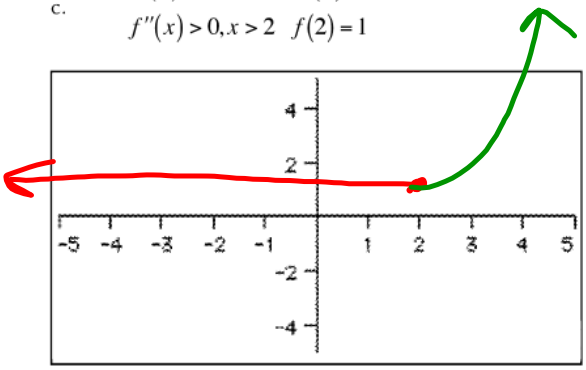
a. $f'(x) > 0$ positive inc - rising
$f''(x) > 0.$ CU all time
$f(1) = -2$ (1, -2)



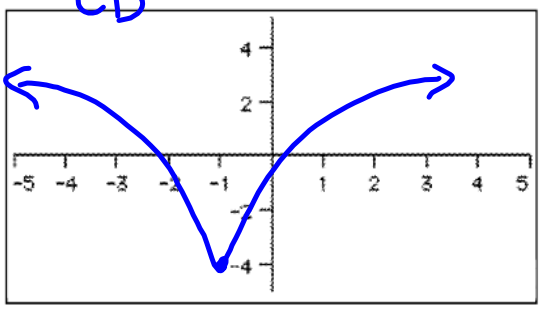
b. $f'(x) > 0, x > 1, \quad f'(x) < 0, x < 1, \quad f'(1) = 0$ crt value min
$f''(x) > 0, \quad f(1) = -1$
inc $x>1$ dec $x<1$
CU (1, -1)



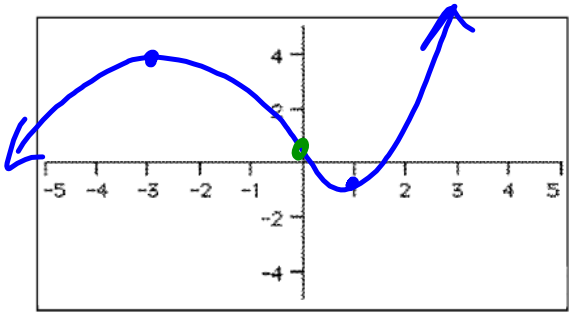
c. $f'(x) > 0, x > 2, \quad f'(x) = 0, x \le 2$
$f''(x) > 0, x > 2 \quad f(2) = 1$



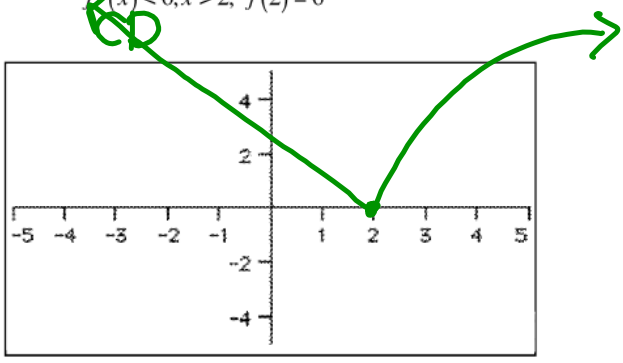
d. $f'(x) > 0, x > -1, \quad f'(x) < 0, x < -1$
$f''(x) < 0, \qquad f(-1) = -4$
CD



e. $f'(x) > 0, x > 1, f'(x) > 0, x < -3, f'(x) < 0, -3 < x < 1$
$f'(-3) = 0, \qquad f'(1) = 0$
$f''(x) < 0, x < 0, \quad f''(x) > 0, x > 0$



f. $f'(x) > 0, x > 2, f'(x) = -1, x < 2, f'(2)$ DNE
$f''(x) < 0, x > 2, \quad f(2) = 0$
CD



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