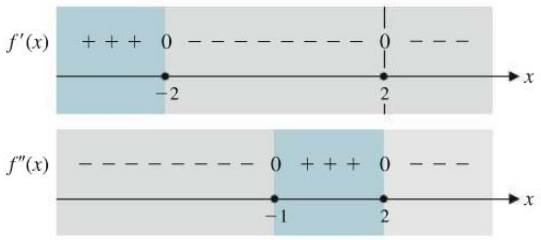
Section **4.4** Curve Sketching:

Assume $f(x)$ is continuous. Use the given information to sketch a possible graph. (KEY is on Brightspace)

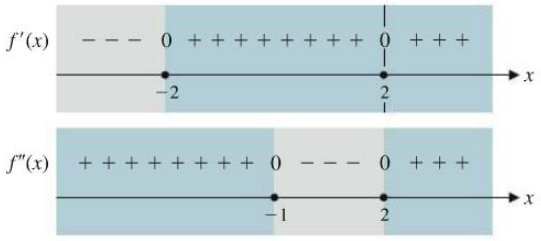
1.

x	-4	-2	-1	0	2	4
$f(x)$	0	3	1.5	0	-1	-3



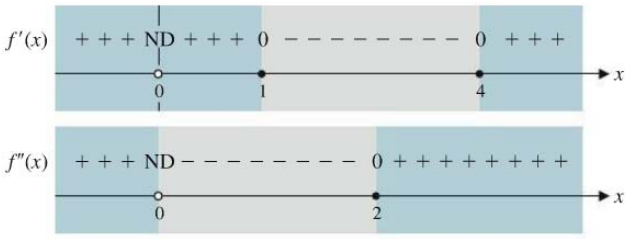
2.

x	-4	-2	-1	0	2	4
$f(x)$	0	-2	-1	0	1	3



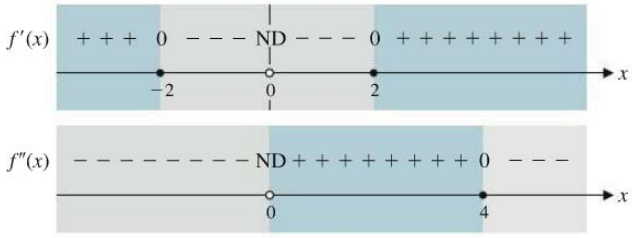
3.

x	-3	0	1	2	4	5
$f(x)$	-4	0	2	1	-1	0



4.

x	-4	-2	0	2	4	6
$f(x)$	0	3	0	-2	0	3



5. $f(0) = 2, f(1) = 0, f(2) = -2;$
$f'(0) = 0, f'(2) = 0;$
$f'(x) > 0$ on $(-\infty, 0)$ and $(2, \infty);$
$f'(x) < 0$ on $(0, 2);$
$f''(1) = 0;$
$f''(x) > 0$ on $(1, \infty);$
$f''(x) < 0$ on $(-\infty, 1)$

6. $f(-2) = -2, f(0) = 1, f(2) = 4;$
$f'(-2) = 0, f'(2) = 0;$
$f'(x) > 0$ on $(-2, 2);$
$f'(x) < 0$ on $(-\infty, -2)$ and $(2, \infty);$
$f''(0) = 0;$
$f''(x) > 0$ on $(-\infty, 0);$
$f''(x) < 0$ on $(0, \infty)$

7. $f(-1) = 0, f(0) = -2, f(1) = 0;$
$f'(0) = 0, f'(-1)$ and $f'(1)$ are not defined;
$f'(x) > 0$ on $(0, 1)$ and $(1, \infty);$
$f'(x) < 0$ on $(-\infty, -1)$ and $(-1, 0);$
$f''(-1)$ and $f''(1)$ are not defined;
$f''(x) > 0$ on $(-1, 1);$
$f''(x) < 0$ on $(-\infty, -1)$ and $(1, \infty)$

8. $f(0) = -2, f(1) = 0, f(2) = 4;$
$f'(0) = 0, f'(2) = 0, f'(1)$ is not defined;
$f'(x) > 0$ on $(0, 1)$ and $(1, 2);$
$f'(x) < 0$ on $(-\infty, 0)$ and $(2, \infty);$
$f''(1)$ is not defined;
$f''(x) > 0$ on $(-\infty, 1);$
$f''(x) < 0$ on $(1, \infty)$