What does f' say about f?

1) The graph of the derivative f' of a function f is shown.
a) On what intervals is f increasing or decreasing?
b) At what values of x does f have a local maximum or minimum?
c) If it is known that $f(0) = 0$, sketch a possible graph of f.

$f(x)$ Key

$f'(x)$

$f(x)$

$f'(x)$ pos pos Neg -1 Neg
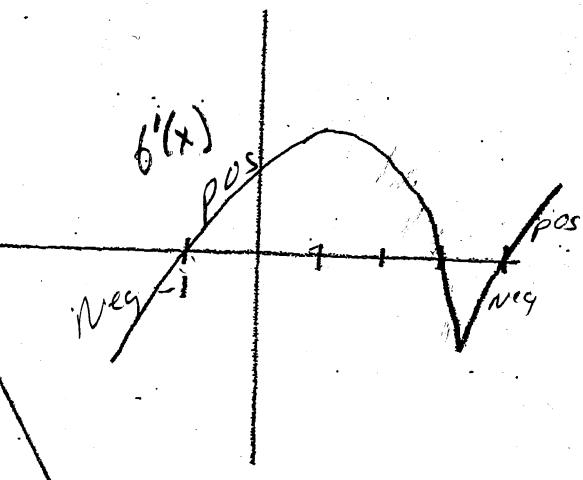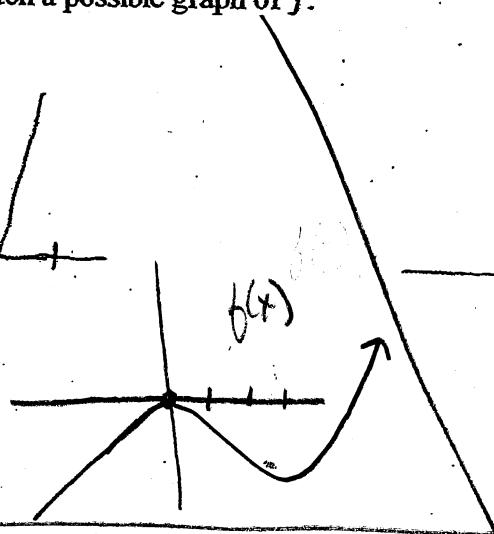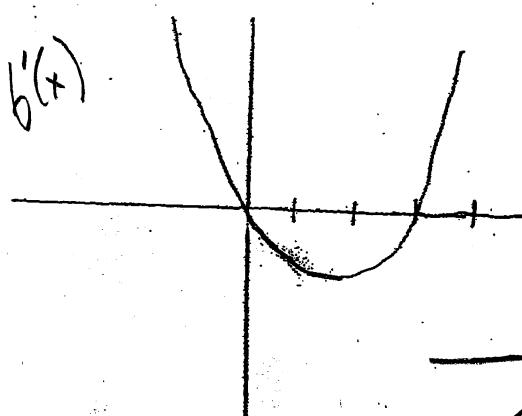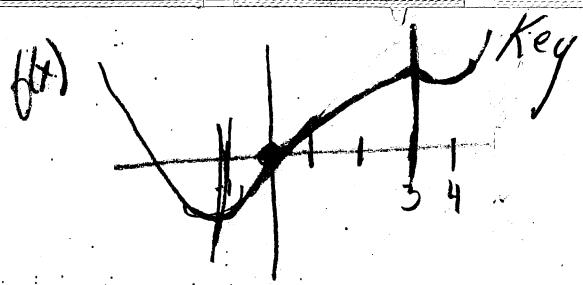
2) The graph of the derivative f' of a function f is shown.
a) on what intervals is f increasing or decreasing?
b) At what values of x does f have a local maximum or minimum?
c) On what intervals is f concave upward or downward?
d) State the x-coordinates of the points of inflection.
e) Assuming that f is continuous and $f(0) = 0$, sketch a graph of f.

$f(x)$ inc 2 3 4 5 6 7 8 9

$y = f'(x)$

$y = f'(x)$

$f(x)$ 4 6
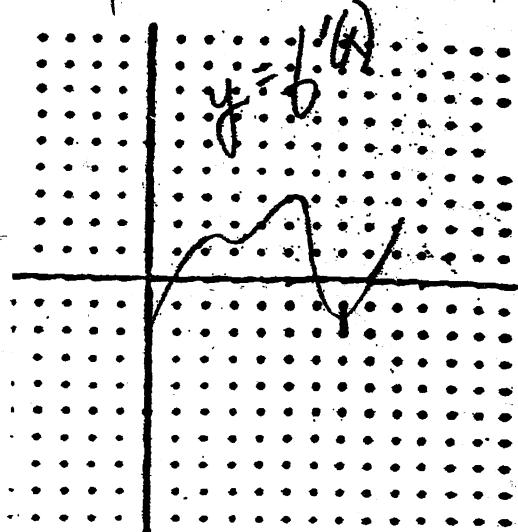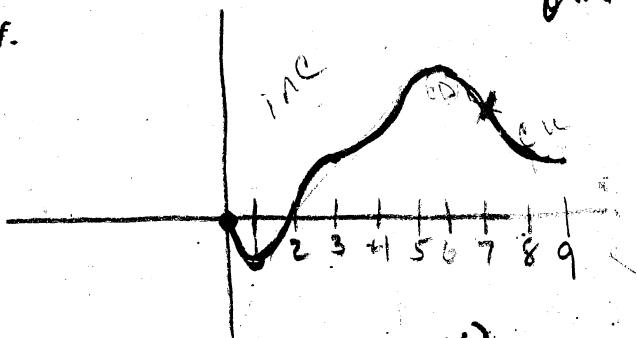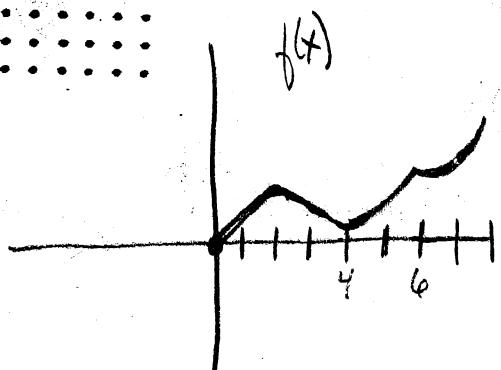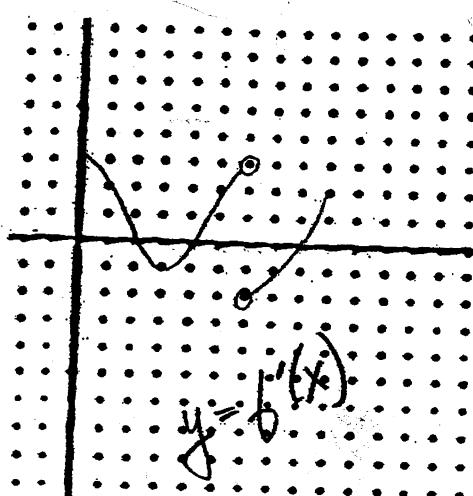
ketch the graph of a function that satisfies the given conditions.

$f'(-1) = f'(1) = 0$
$f'(x) < 0$ if $|x| < 1$
$f'(x) > 0$ if $|x| > 1$
$f(-1) = 4$ $\qquad$ $f(1) = 0$
$f''(x) < 0$ if $x < 0$
$f''(x) > 0$ if $x > 0$
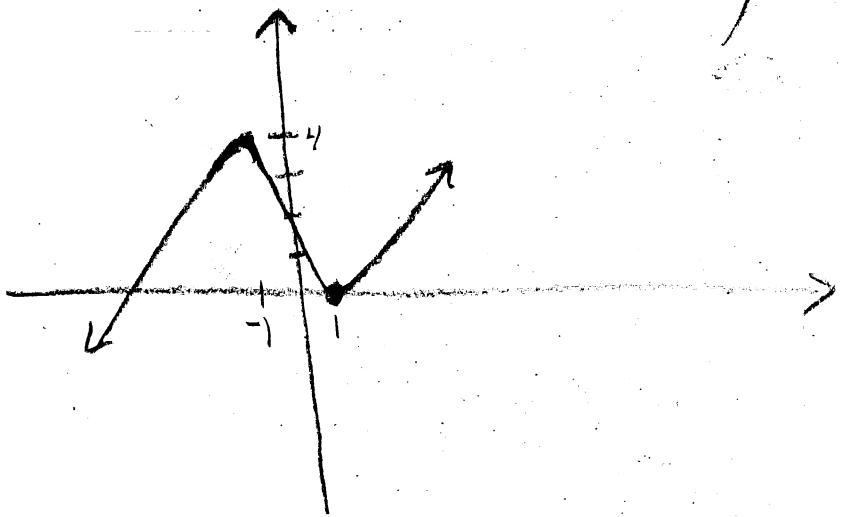
$f'(-1) = 0$
$f'(1)$ does not exist
$f'(x) < 0$ if $|x| < 1$
$f'(x) > 0$ if $|x| > 1$
$f(-1) = 4$ $\qquad$ $f(1) = 0$
$f''(x) < 0$ if $x \neq 1$
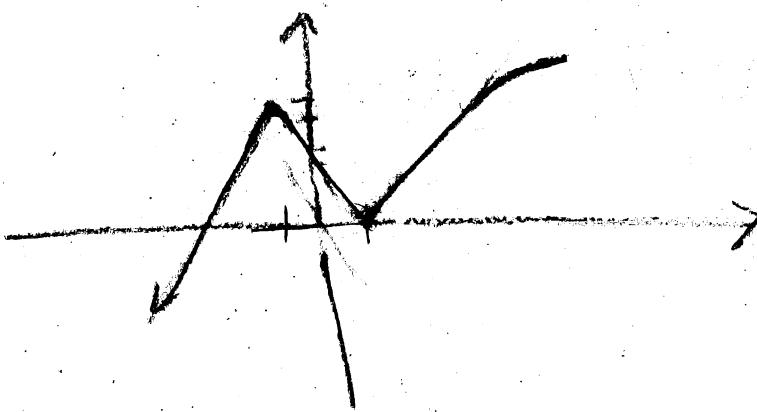
$f'(2) = 0$ $\qquad$ $f(2) = -1$
$f(0) = 0$ $\qquad$ $f'(x) < 0$ if $0 < x < 2$
$f'(x) > 0$ if $x > 2$
$f''(x) < 0$ if $0 \leq x < 1$ or if $x > 4$
$f''(x) > 0$ if $1 < x < 4$
$\lim_{x \to \infty} f(x) = 1$
$f(-x) = f(x)$ for all x