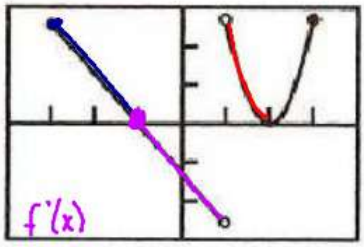
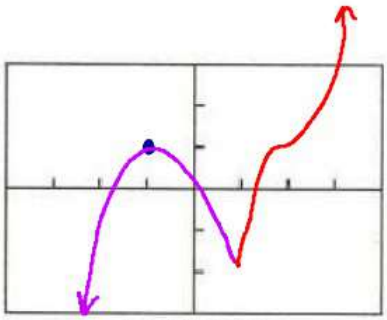
8. Sketch a possible graph of a continuous function **f** that has domain [-3, 3], where f(-1) = 1 and the graph of y = f'(x) is shown below.



[–4, 4] by [–3, 3]



[–4, 4] by [–3, 3]

$x = -1$ $f'(x)$ undefined

- corner
- cusp
- vertical tangent

$(-3,-1)$ Inc

$(-1,1)$ Dec

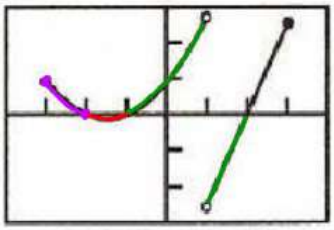
$x = -1$ Max

$x = 2$ H.T

$(1,2)$ inc

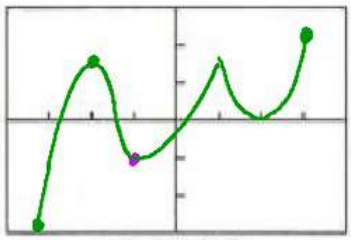
$(2,3)$ inc

9 Sketch a possible graph of a continuous function **f** that has domain [-3, 3], where f(-1) = -1 and the graph of y = f'(x) is shown below.



[–4, 4] by [–3, 3]

f(x)



[–4, 4] by [–3, 3]

$(-3,-2)$ inc

$x = -2$ max

$(-2,-1)$ dec

$x = -1$ min

$(-1,1)$ inc

$(1,2)$ dec

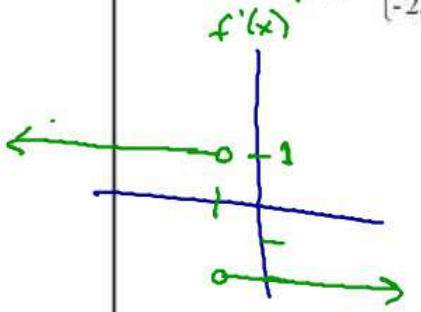
$x = 2$ min

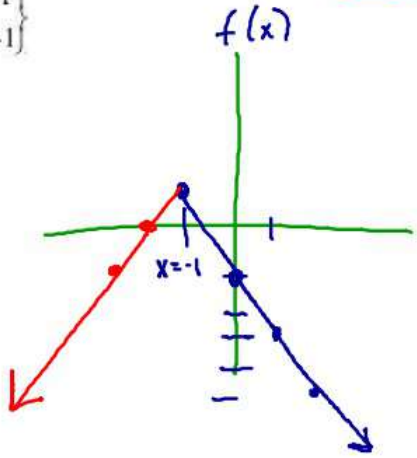
$(2,3)$ inc

$y = x + C$

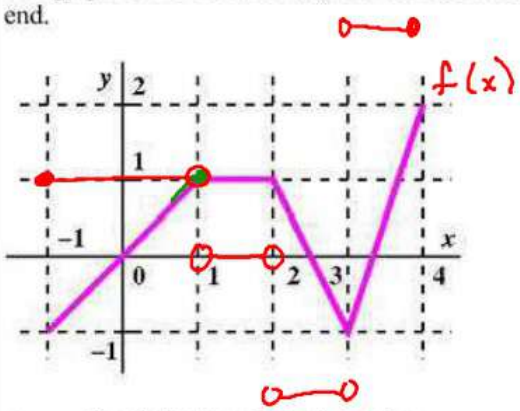
p. 107 #27 Sketch the graph of a continuous function f with f(0) = -1 and

$$f'(x) = \begin{cases} 1, & x < -1 \\ -2, & x > -1 \end{cases}$$





The graph of the function f(x) is shown here is made of line segments joined at each end.



Intervals

(-1,1) slope 1 $f'(x) = 1$

(1,2) slope = 0

(2,3) $f'(x) = -2$

(3,4) $f'(x) =$

a. Graph the functions derivative.

b. At what values of x between x = -1 and x = 4 is the function not differentiable?

$x = 1, 2, 3$