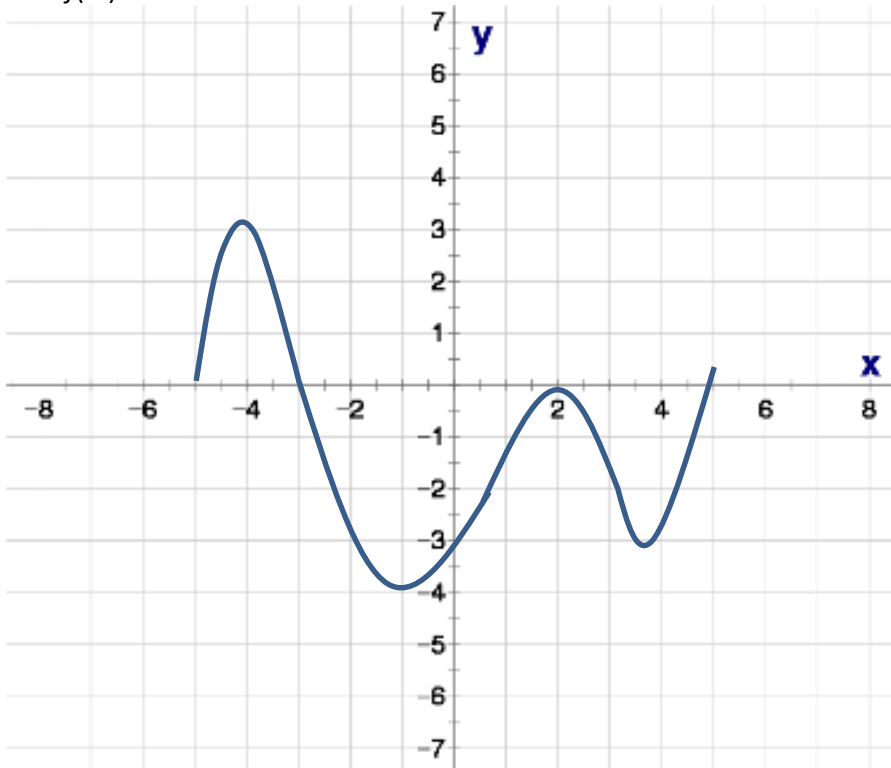
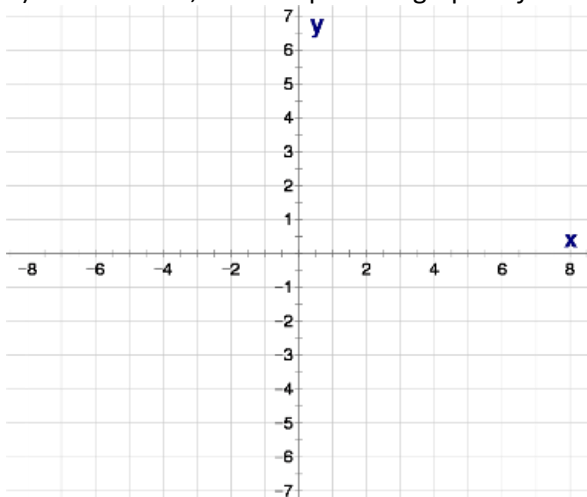


AP Calc Extra Practice 2 Test 4-1

1. The figure below shows the graph of  $f'$ , the derivative of the function  $f$ , on the closed interval  $-5 \leq x \leq 5$ . The graph of  $f'$  has horizontal tangent lines at  $x = -4$ ,  $x = -1$ ,  $x = 2$  and  $x = 4$ . The function  $f$  is twice differentiable with  $f(-3) = 5$ .



- Find the  $x$ -coordinate of each local minimum/maximum of the graph of  $f$ . Justify your answer.
- Find the  $x$ -coordinate of each of the points of inflection of the graph of  $f$ . Justify your answer.
- Find all the intervals on which the graph of  $f$  is concave down and also has a negative slope. Explain your reasoning.
- For  $-5 \leq x \leq 5$ , sketch a possible graph of  $f$  on the axes.



Find x-intercepts, y-intercepts, critical points, relative extrema, intervals of increasing/decreasing, inflection points and intervals of concavity for each:

2.  $f(x) = x^3(4 - 3x)$

3.  $f(x) = x + 2 \cos x$  on  $[0, 2\pi]$