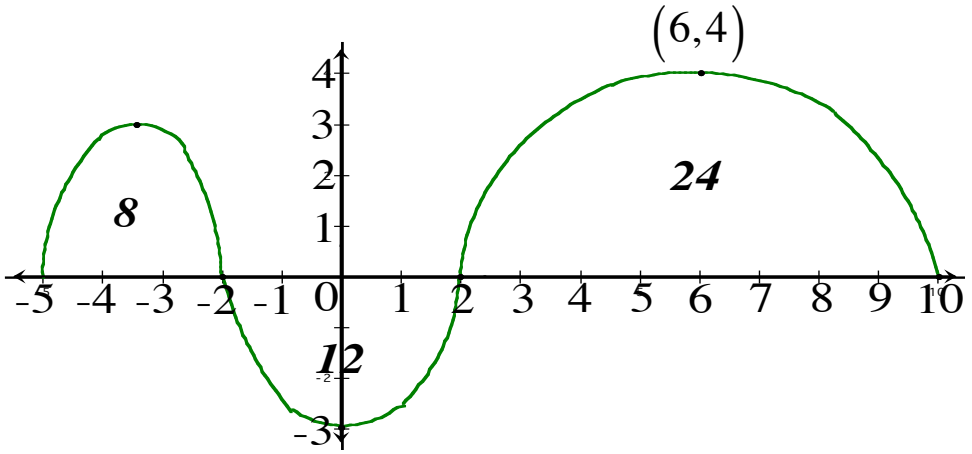
WS AP TOPICS REVIEW #1

NAME : _____



1) Let f be a function defined on the closed interval $-5 \le x \le 10$ with $f(2) = 15$. The graph of f', the derivative of f, is shown above.

a) On what intervals, if any, is f increasing? Justify your answer.

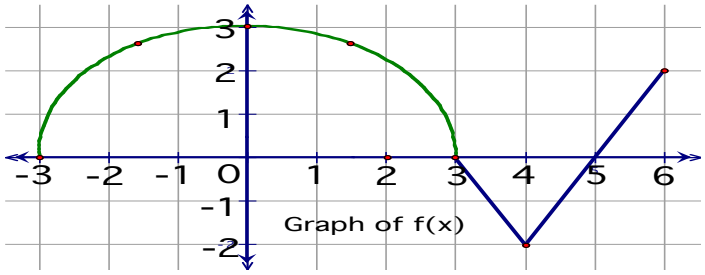
b) On what intervals, if any, is f concave up? Justify your answer.

c) Find the x-coordinate of each point of rel. max. of the graph of f on the open interval $-5 < x < 10$. Justify your answer.

d) Find an equation for the line tangent to the graph of f at the point (6,27).

e) Find $f(-5)$ and $f(10)$. Show the work that leads to your answers.

f) Find the absolute maximum and minimum value from $[-5,10]$. Justify your answer.



2) The graph of a function f consists of a semicircle and two line segments as shown above.

Let g be the function given by $g(x)=\int_0^x f(t)\,dt$.

a) Find each:

$g(3)=$ $g(-3)=$

$g(4)=$ $g(6)=$

b) Find each: $g'(4)=$

$g'(5)=$

$g''(5)=$

c) Write an equation for the line tangent to the graph of g at $x=4$.

d) For what values of x in the open interval $(-3,6)$ is the graph of g concave down? Explain your reasoning.

e) Find the x-coordinate of each point of inflection of the graph of g on the open interval $(-3,6)$. Justify your answer.

3) If the velocity of the particle is 100 at $t=3$ and the acceleration of the particle is $a(t)=11\sin t$, find the velocity of the particle at $t=7$.

4) If $f(6)=50$
Find $f(0)=$