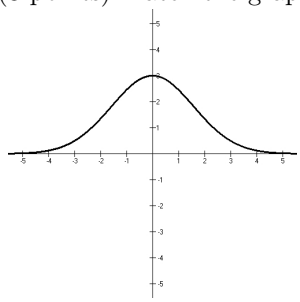
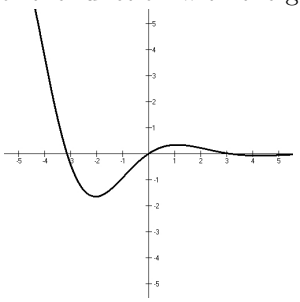
MATH 140: Quiz 2

Name:

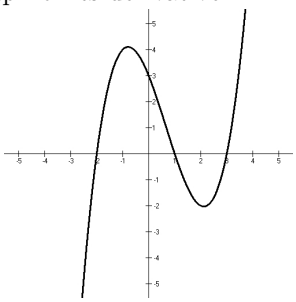
#1 (8 points) Match the graph of the function with the graph of its derivative.



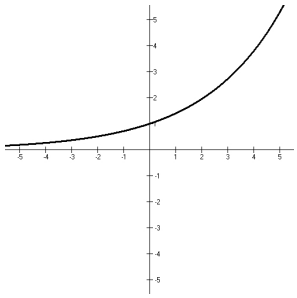
(i)



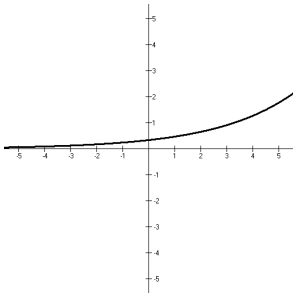
(ii)



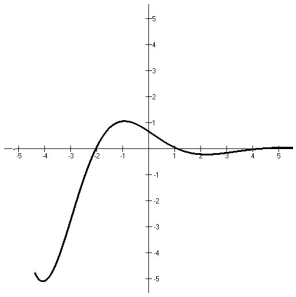
(iii)



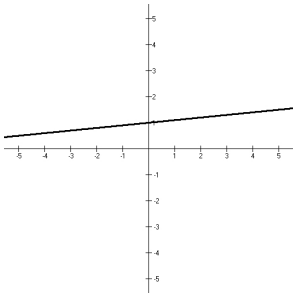
(iv)



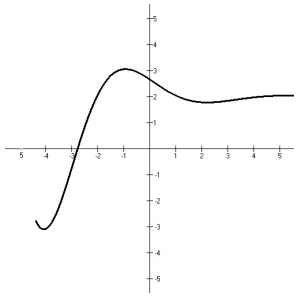
(A)



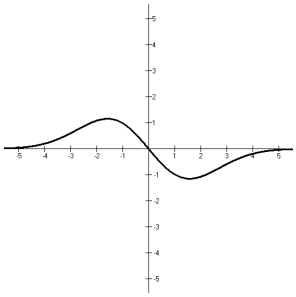
(B)



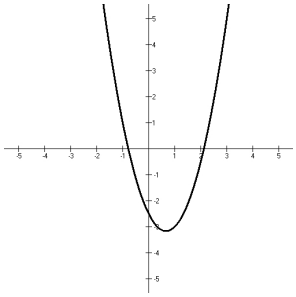
(C)



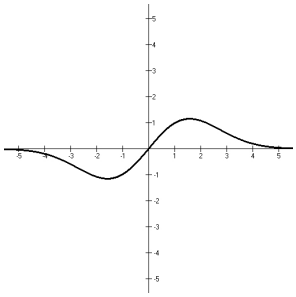
(D)



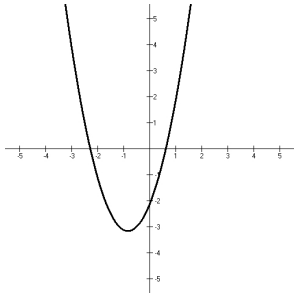
(E)



(F)



(G)



(H)

#2 (5 points). Given that $f(5) = 300$ and $f'(5) = 6$, give the equation of the line that locally approximates $f(x)$ near $x = 5$.

#3 Given the following data, where $C(q)$ and $R(q)$ are cost and revenue functions, respectively, of the quatity, q, produced:

q	10	20	30	40	50	60
$C(q)$	100	120	130	135	145	160
$R(q)$	60	100	135	145	150	153

a. (4 points) Estimate the marginal cost and marginal revenue at $q = 30$.

b. (2 points) If the company is currently producing 30 units, should it produce less, the same amount, or more? Why?

c. (2 points) Over the interval from 10 to 60, is $\frac{d^2R}{dq^2}$ positive, negative, or zero? Why?