Calculus for the Life Science I
MAT1330A , MAT1330B, MAT1330E
Assignment 4

Due date: Oct. 28

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DGD (circle one): 1 , 2 , 3 , 4

Student Name (printed): _____

Student ID Number: _____

Question 1

Compute the derivative of the following functions.

$$\textbf{a)} \quad f(x) = -\cos^2(1 - 3x) \qquad\qquad \textbf{b)} \quad h(t) = \frac{1}{\sin(3t^2)}$$

$$\textbf{c)} \quad g(x) = \frac{x - e^{-2x}}{1 - xe^{-2x}} \qquad\qquad \textbf{d)} \quad f(y) = \cos(\sqrt{x^2 + 4})$$

Don't forget to simplify the results as much as possible.

Answer :

a) $f'(x) =$

b) $h'(t) =$

c) $g'(x) =$

d) $f'(y) =$

Question 2

If $f(x) = x + 2e^x$, find the value of $g'(1 + 2e)$, where $g(x) = f^{-1}(x)$ for all x.
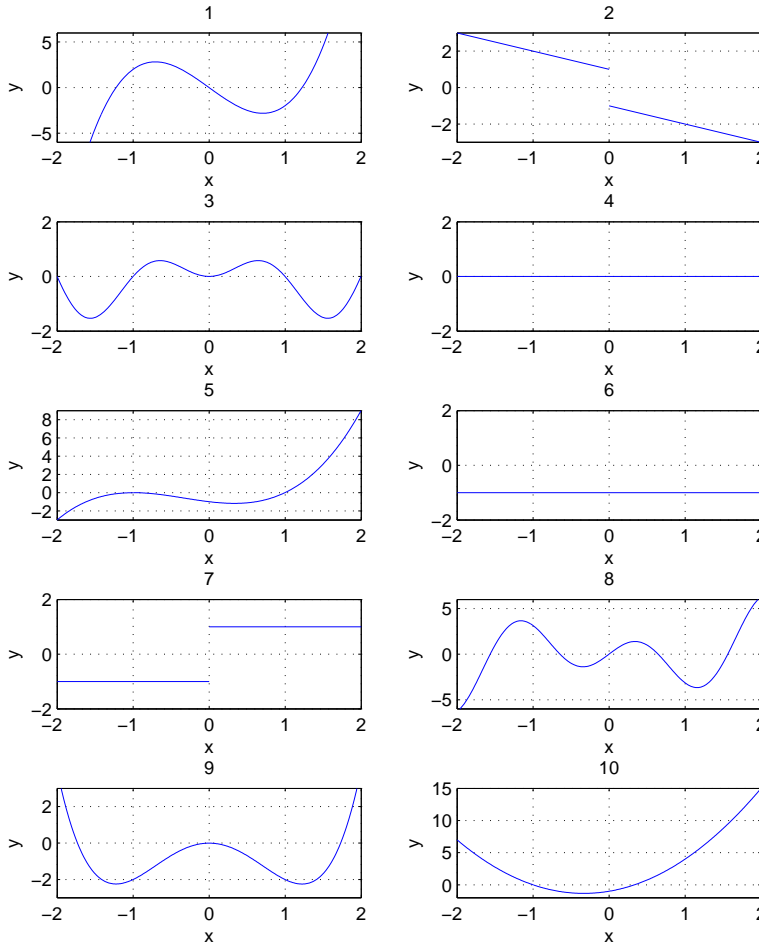
Answer :

$g'(1 + 2e) =$

Question 3

Find the equation of the tangent line to the curve $y = xe^x \cos(x)$ at $x = \pi$.

Answer :

Question 4

A clumsy mathematician drops on the floor the following figures.

Answer :

n_1	n_2

    Five of the figures represent the graphs of functions and the other five represent the graphs of the derivative of these functions. Write down the pairs (n_1, n_2), where n_1 is the number of the figure associated to the graph of a fonction f and n_2 is the number of the figure associated to the graphe of the derivative f' of the function. **You cannot use a figure more than once**.