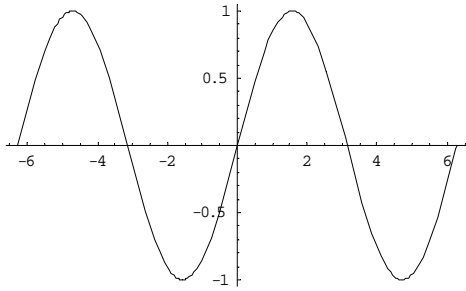


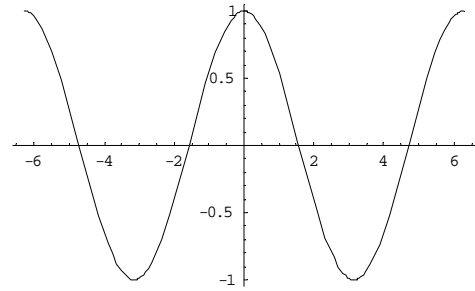
系級：\_\_\_\_\_ 學號：\_\_\_\_\_ 姓名：\_\_\_\_\_

1. 試寫出下列各圖所對應之函數  $f(x)=?$  並說明該函數之奇偶性。(21%)

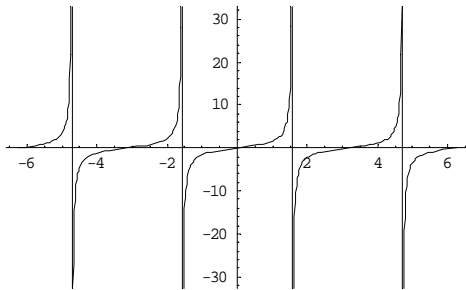
(1)



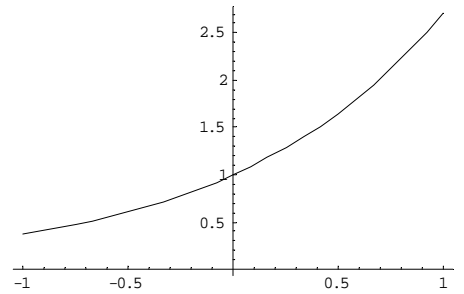
(2)



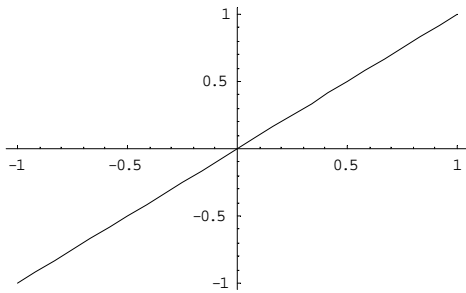
(3)



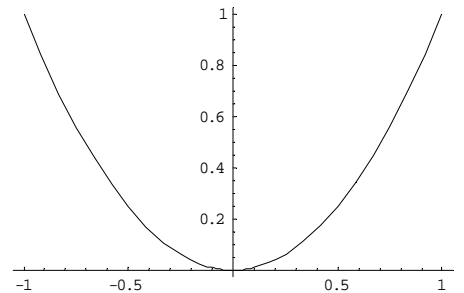
(4)



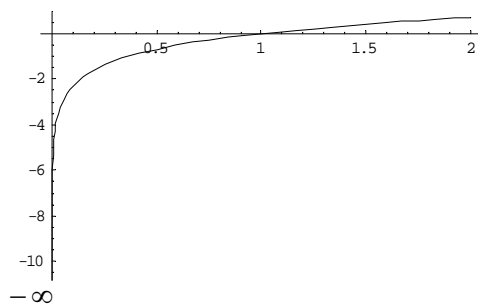
(5)



(6)



(7)



2. (1)  $\sin(\alpha + \beta) = ?$  (5%)

(2)  $\cos(\alpha + \beta) = ?$  (5%)

3. (1)  $\lim_{x \rightarrow 0} \frac{2e^{2x} - 2}{x}$  (5%)

(2)  $\lim_{x \rightarrow \infty} \frac{\ln x}{2e^x}$  (5%)

4. 試求下列各函數  $f(x)$  的微分  $f'(x) = ?$  (24%)

(1)  $f(x) = \sin x$

(2)  $f(x) = \sin^2 x$

(3)  $f(x) = \sin(x^2)$

(4)  $f(x) = \sqrt{3x^2 - 1}$

(5)  $f(x) = \frac{3x-1}{x^2+3}$

(6)  $f(x) = a^x$

5. (1)  $\int \frac{1}{3x-3} dx = ?$  (5%)

(2)  $\int e^{2x} \sin x dx = ?$  (5%)

6.  $\begin{vmatrix} 3 & 3 & 3 \\ 2 & 2 & -2 \\ 1 & -1 & 1 \end{vmatrix} = ?$  (10%)

7.  $\begin{bmatrix} 1 & 2 \\ 2 & 3 \end{bmatrix} \begin{bmatrix} -1 & 3 \\ -2 & 4 \end{bmatrix} = ?$  (5%)

8.  $A = \begin{bmatrix} 1 & -1 \\ -1 & 2 \end{bmatrix}$  請求出  $A^{-1}$ 。 (10%)