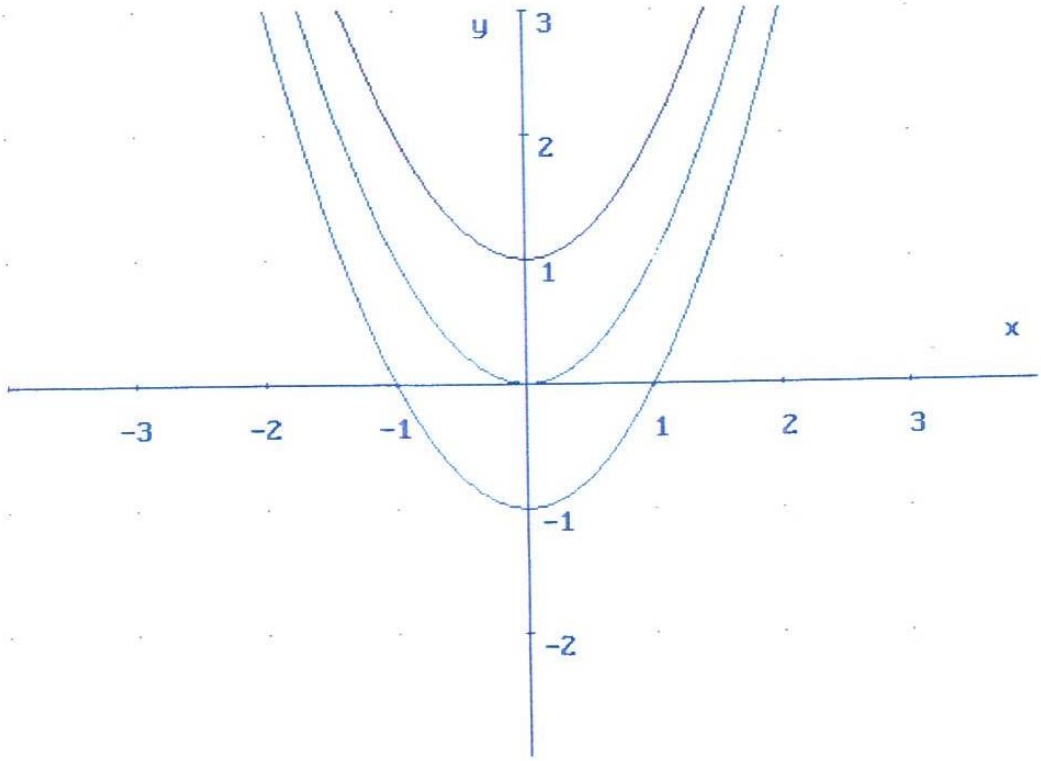
ANEXOS

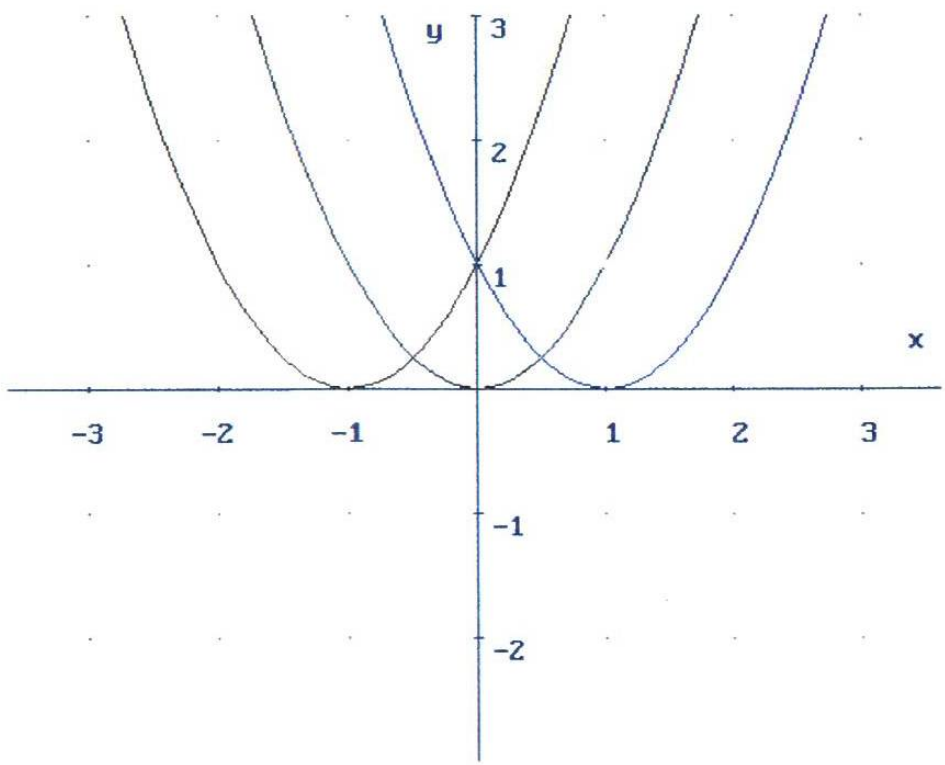
ANEXO 1



$$\#1: \quad x^2$$

$$\#2: \quad x^2 + 1$$

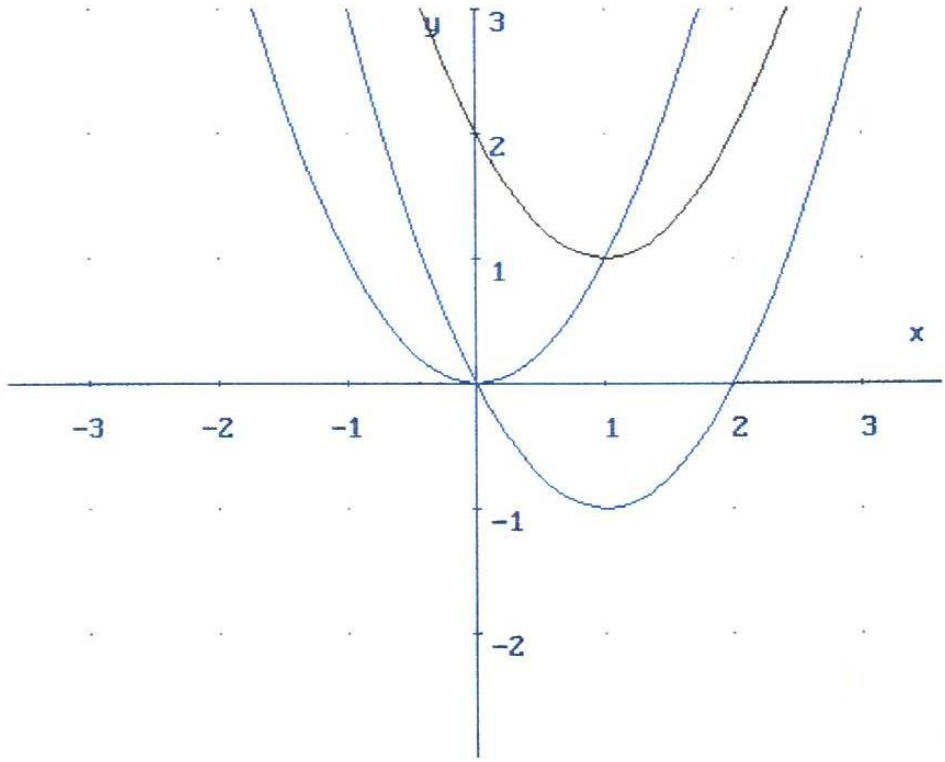
$$\#3: \quad x^2 - 1$$



$$\#1: \quad x^2$$

$$\#2: \quad (x + 1)^2$$

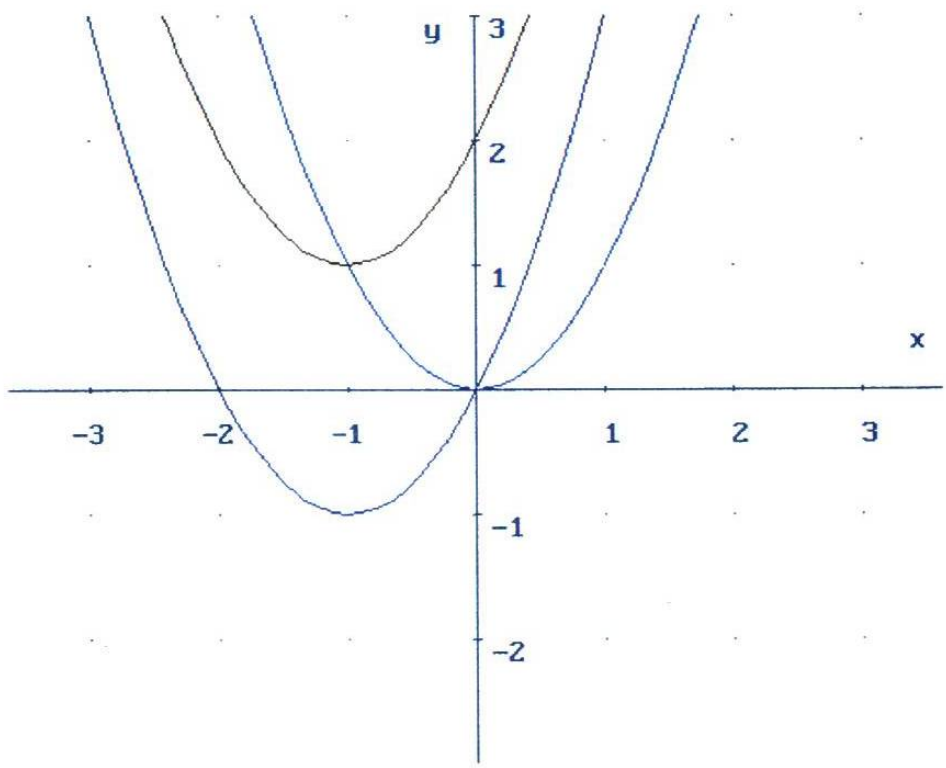
$$\#3: \quad (x - 1)^2$$



#1: x^2

#2: $(x - 1)^2 + 1$

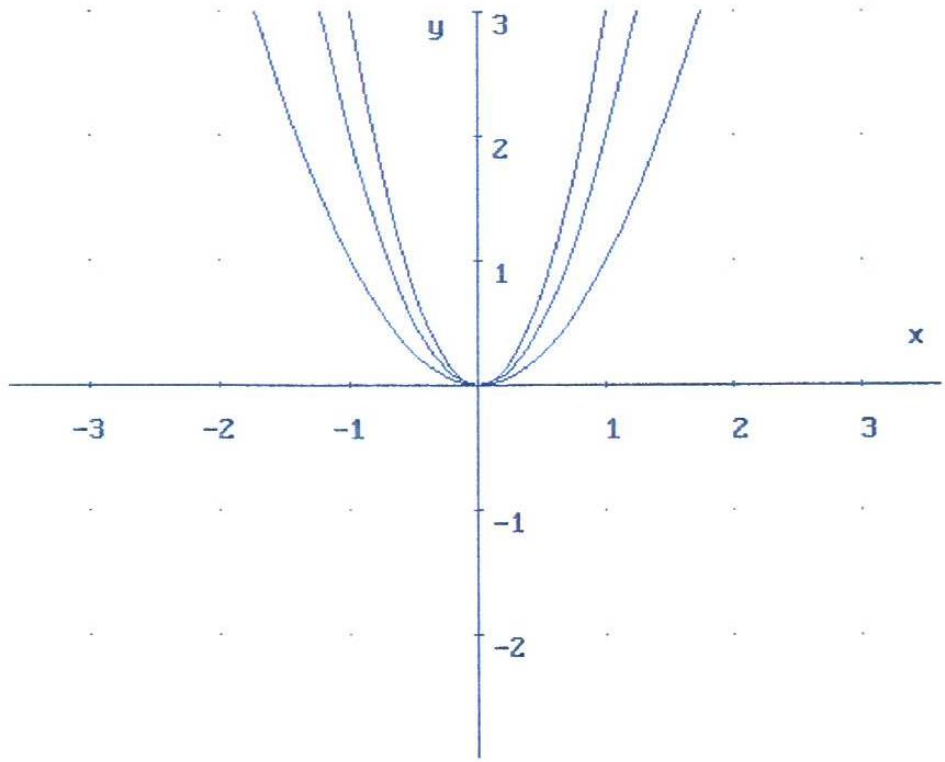
#3: $(x - 1)^2 - 1$



#1: x^2

#2: $(x + 1)^2 + 1$

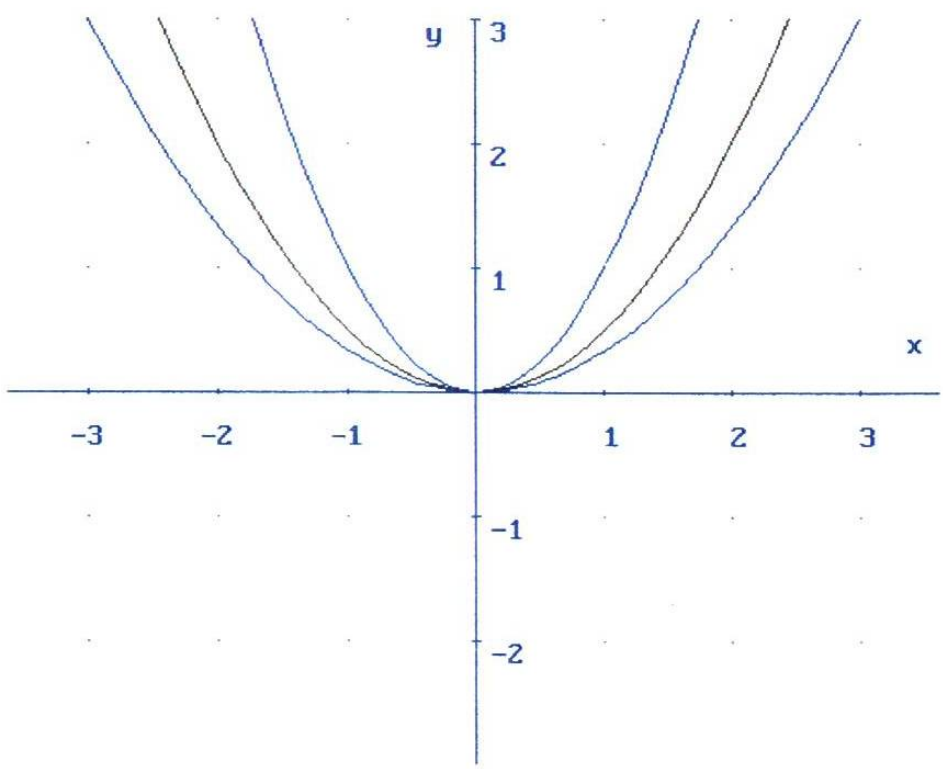
#3: $(x + 1)^2 - 1$



#1: x^2

#2: $2 \cdot x^2$

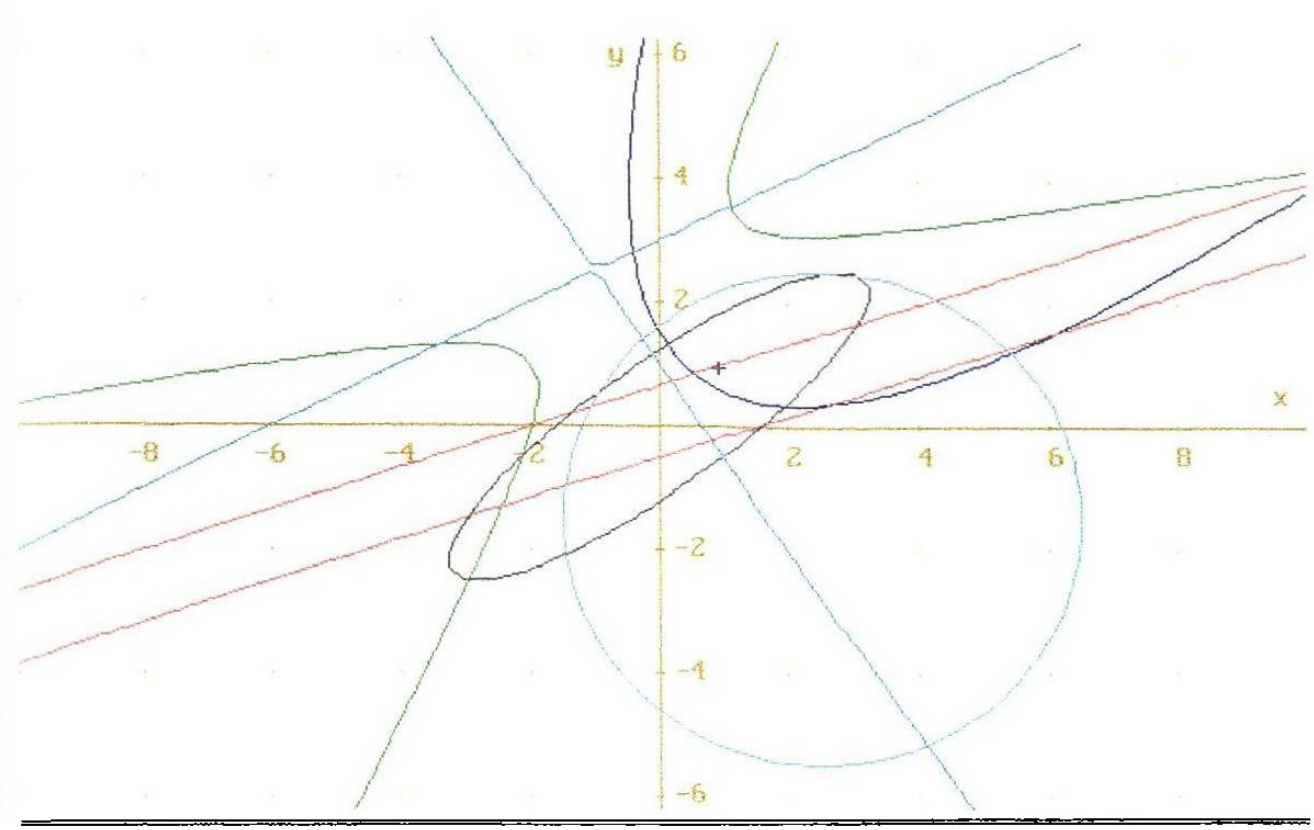
#3: $\frac{1}{2} \cdot x^2$



#1: $\frac{1}{2} \cdot x^2$

#2: $\frac{1}{2} \cdot x^2$

#3: $\frac{1}{3} \cdot x^2$



#1: $16 \cdot x^2 - 24 \cdot x \cdot y + 9 \cdot y^2 - 60 \cdot x - 80 \cdot y + 100 = 0$

#2: $32 \cdot x^2 - 72 \cdot x \cdot y + 53 \cdot y^2 = 80$

#3: $4 \cdot x^2 - 24 \cdot x \cdot y + 11 \cdot y^2 + 56 \cdot x - 58 \cdot y + 95 = 0$

#4: $3 \cdot x^2 - 4 \cdot x \cdot y - 4 \cdot y^2 + 16 \cdot x + 16 \cdot y - 12 = 0$

#5: $5 \cdot x^2 + 2 \cdot x \cdot y + 10 \cdot y^2 - 12 \cdot x - 22 \cdot y + 17 = 0$

#6: $x^2 + 8 \cdot x \cdot y + 16 \cdot y^2 - 4 \cdot x - 16 \cdot y + 7 = 0$

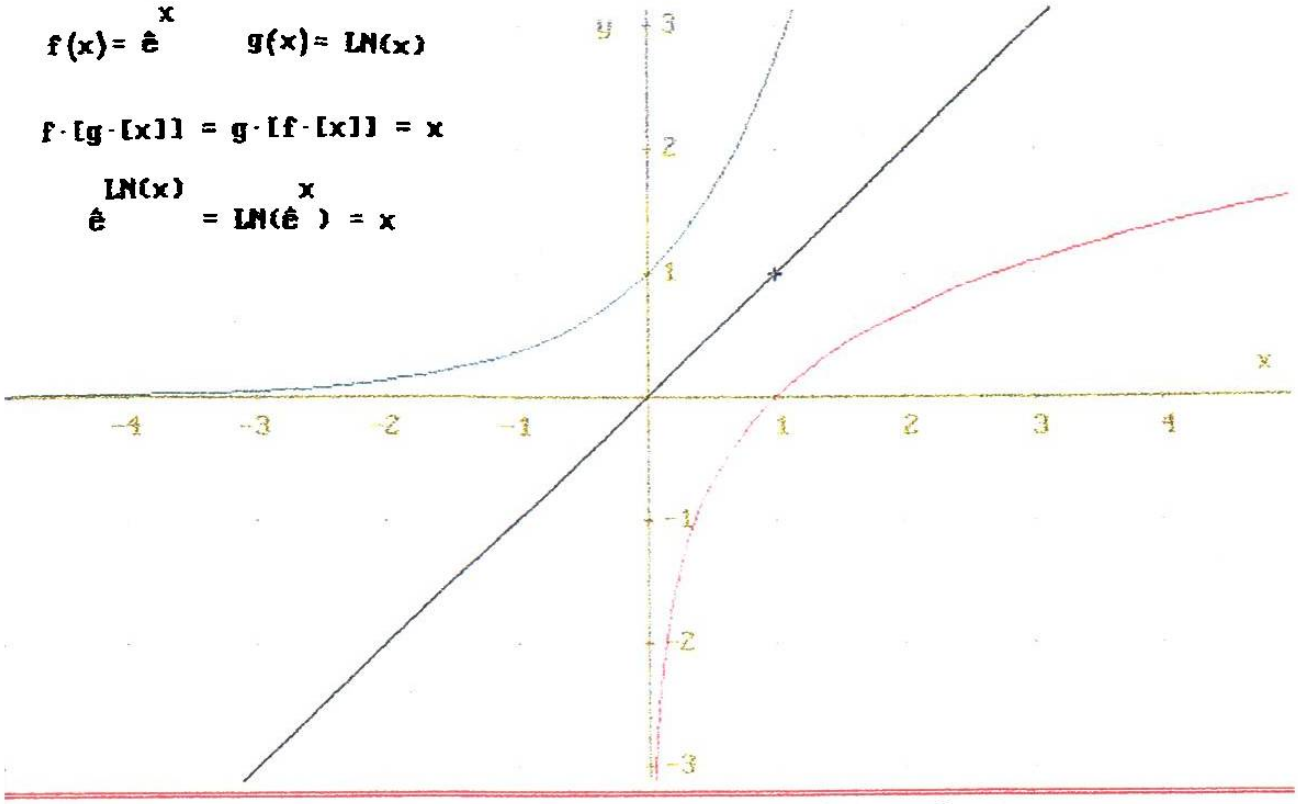
#7: $2 \cdot x^2 - 12 \cdot x \cdot y + 18 \cdot y^2 + x - 3 \cdot y - 6 = 0$

#8: $2 \cdot x^2 + 2 \cdot y^2 - 10 \cdot x + 6 \cdot y - 15 = 0$

$f(x) = \hat{e}^{x}$ $\quad g(x) = LN(x)$

$f\cdot[g\cdot[x]] = g\cdot[f\cdot[x]] = x$

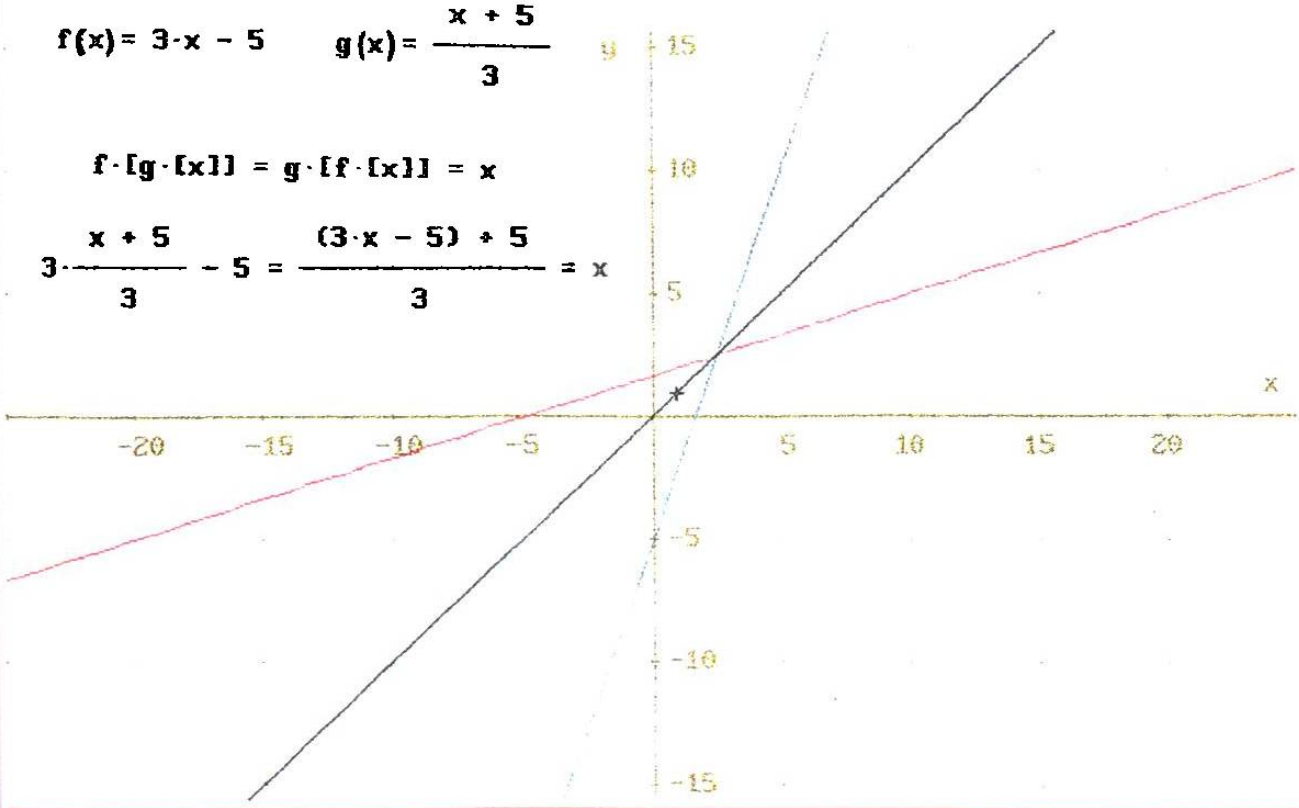
$\hat{e}^{LN(x)} = LN(\hat{e}^{x}) = x$



$f(x) = 3\cdot x - 5$ $\quad g(x) = \dfrac{x + 5}{3}$

$f\cdot[g\cdot[x]] = g\cdot[f\cdot[x]] = x$

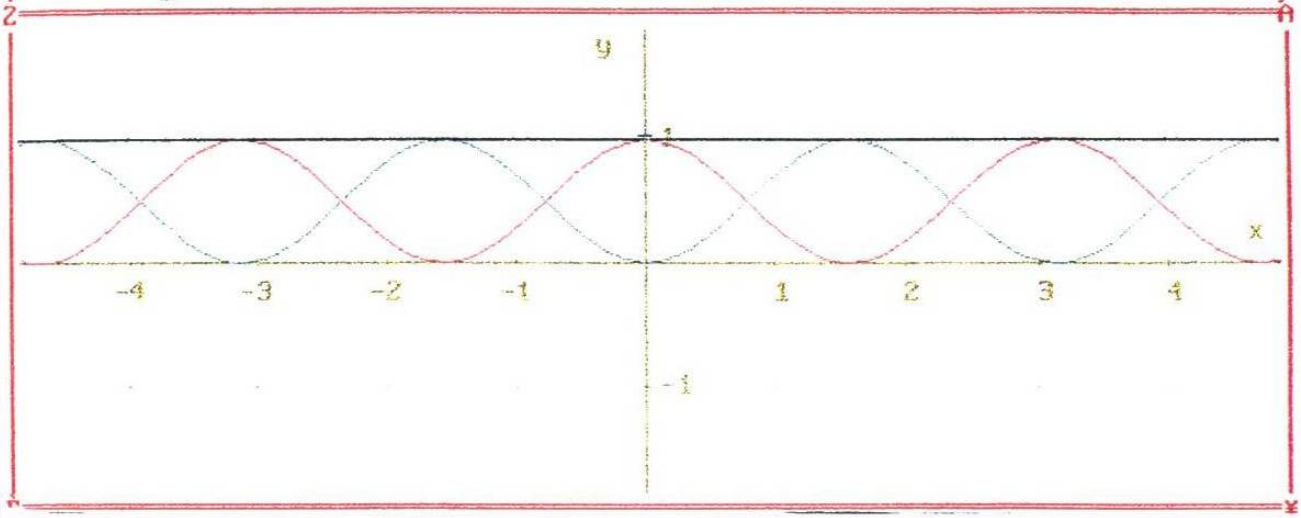
$3\cdot\dfrac{x + 5}{3} - 5 = \dfrac{(3\cdot x - 5) + 5}{3} = x$



#1: $SIN(t)^2$

#2: $COS(t)^2$

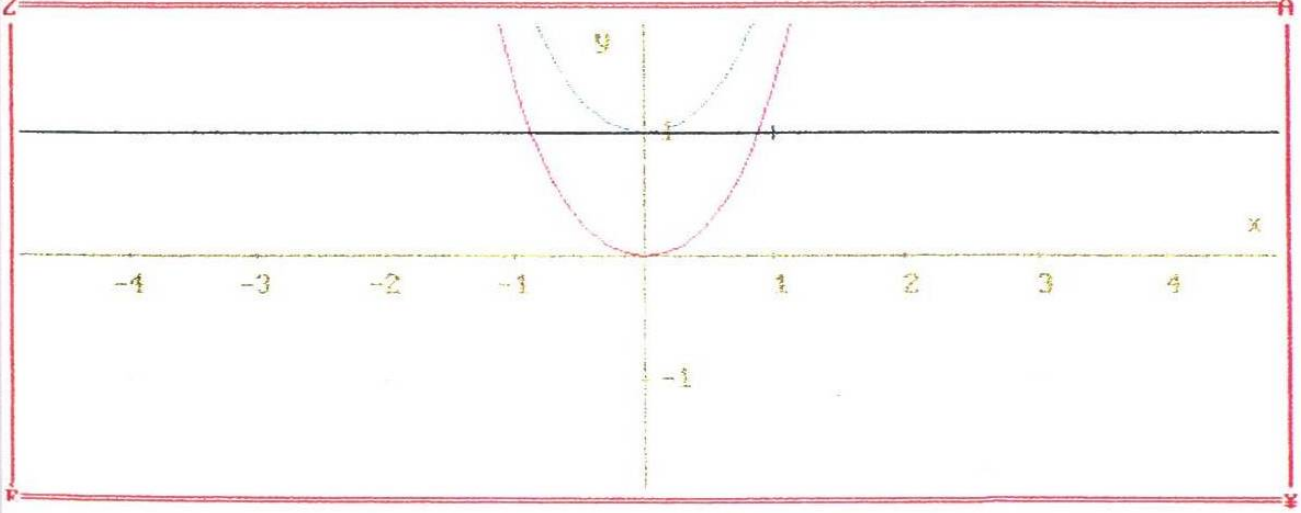
#3: $SIN(t)^2 + COS(t)^2$



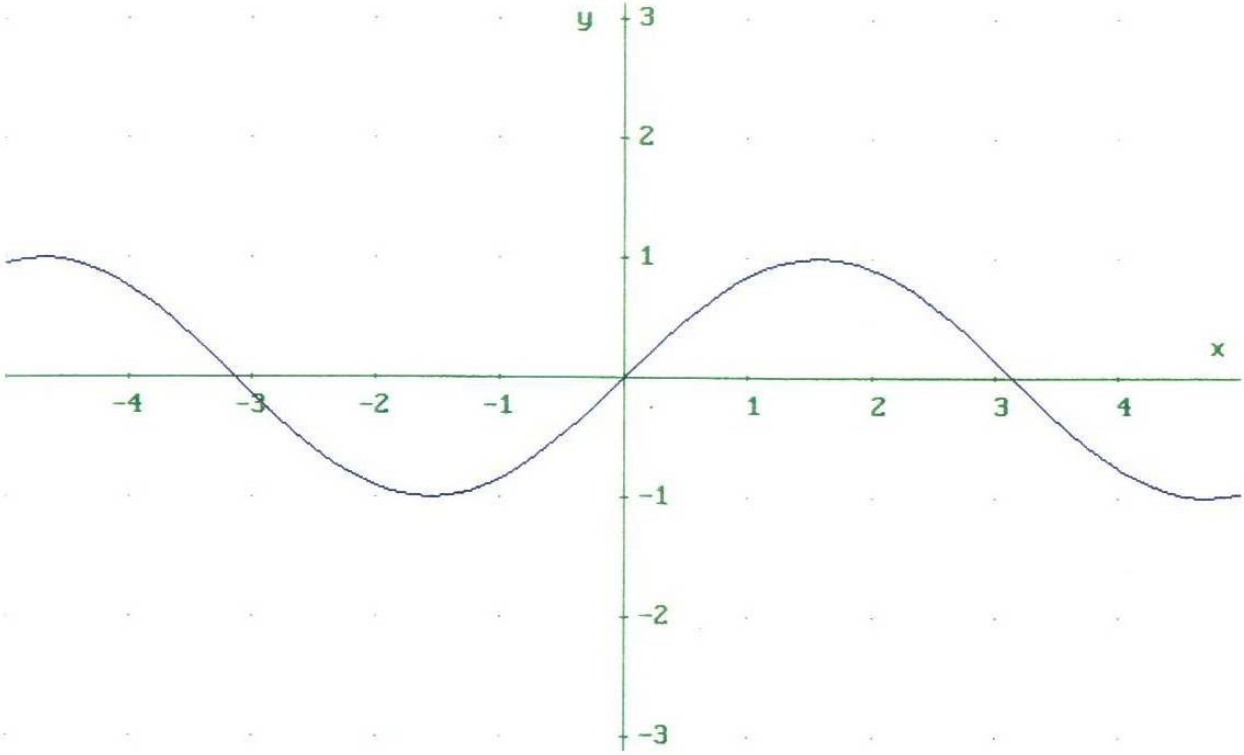
#1: $COSH(x)^2$

#2: $SINH(x)^2$

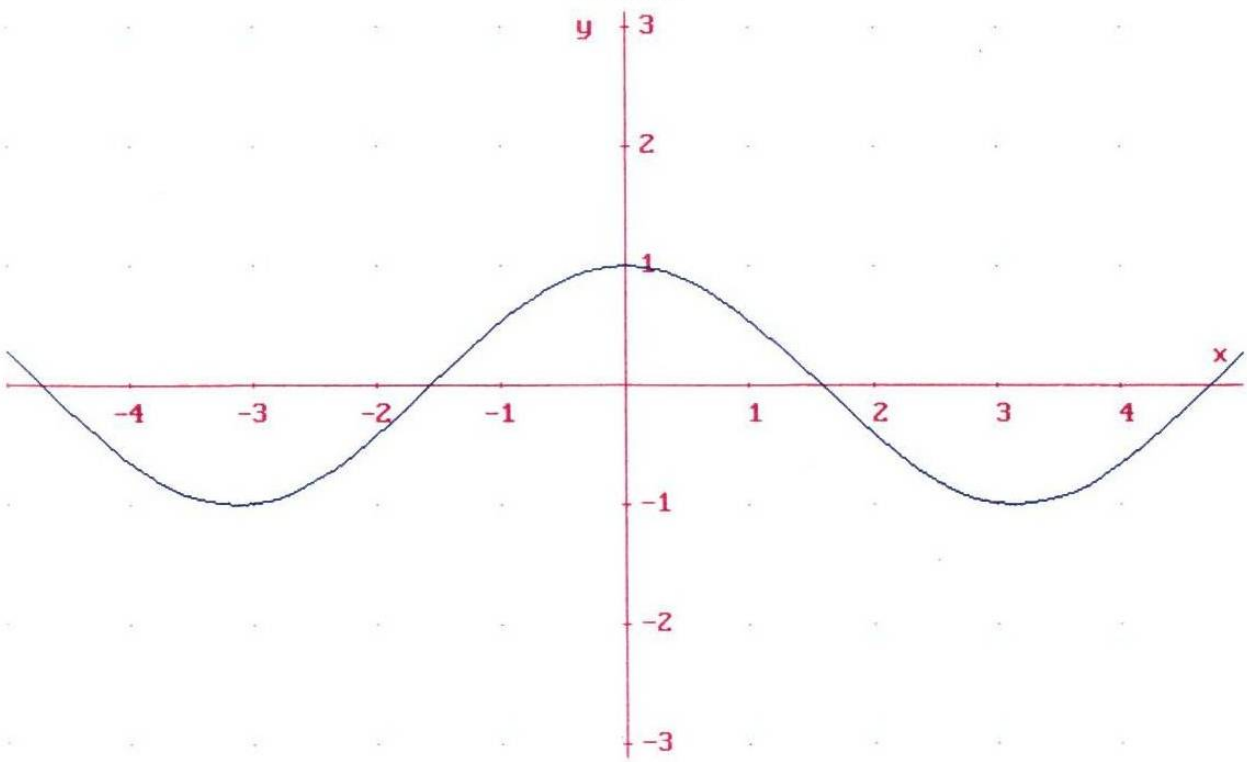
#3: $COSH(x)^2 - SINH(x)^2$



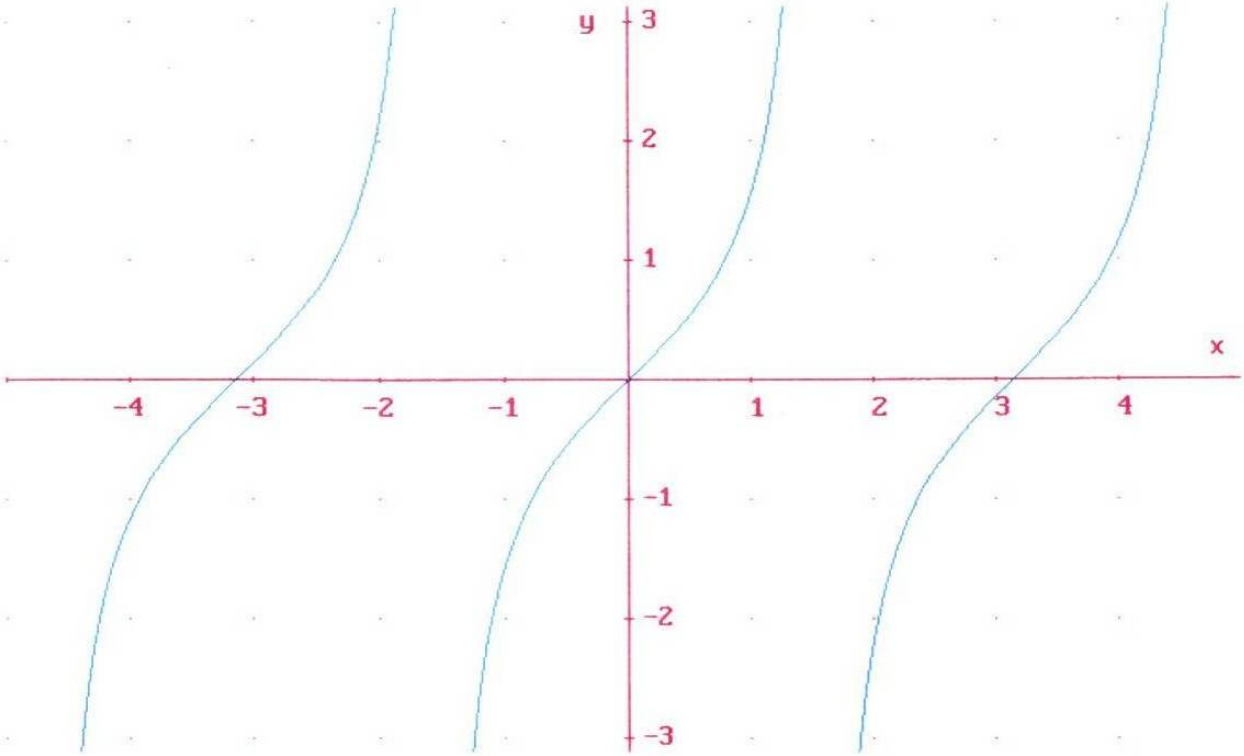
SIN(x)



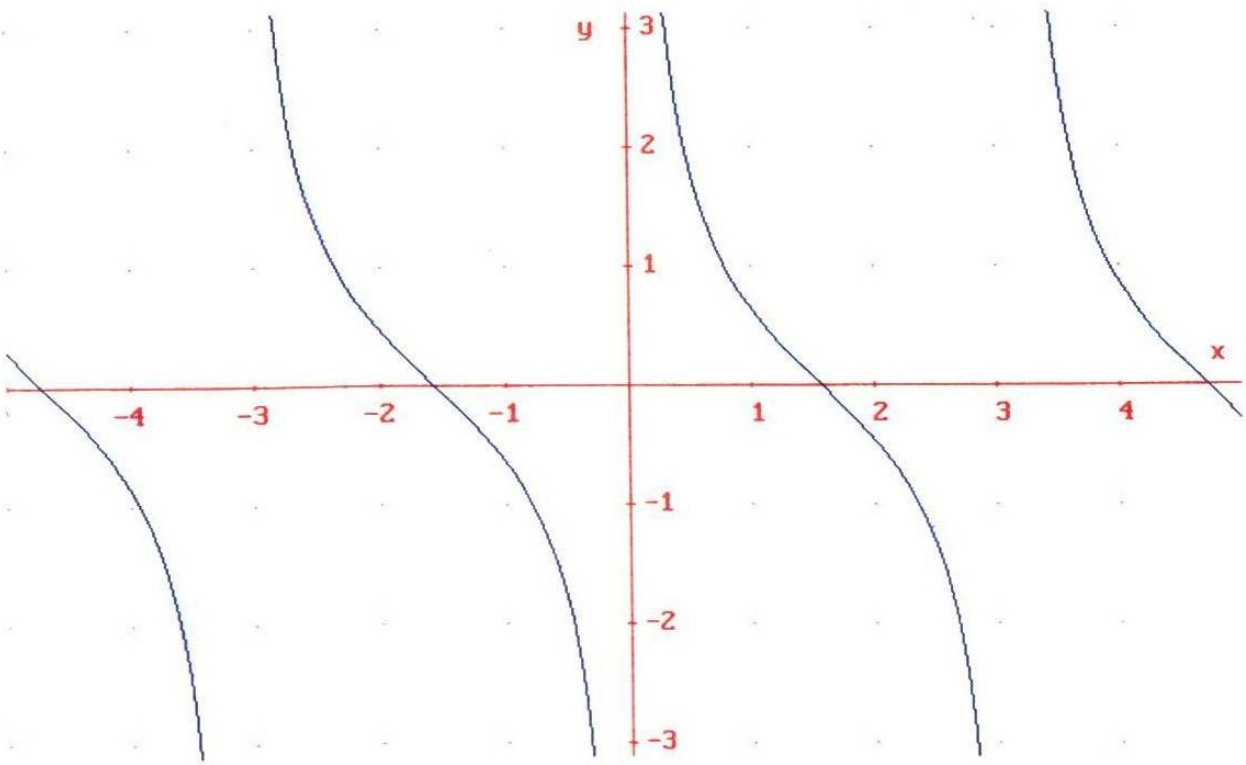
COS(x)



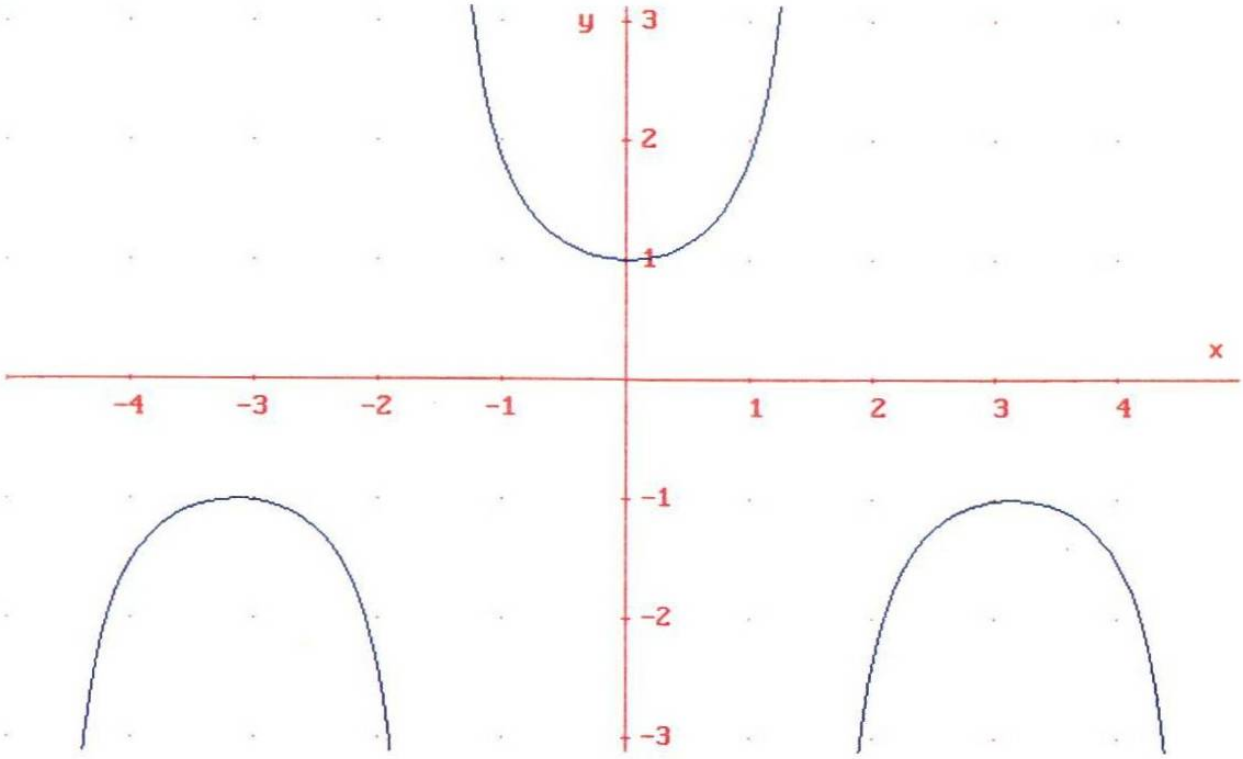
TAN (x)



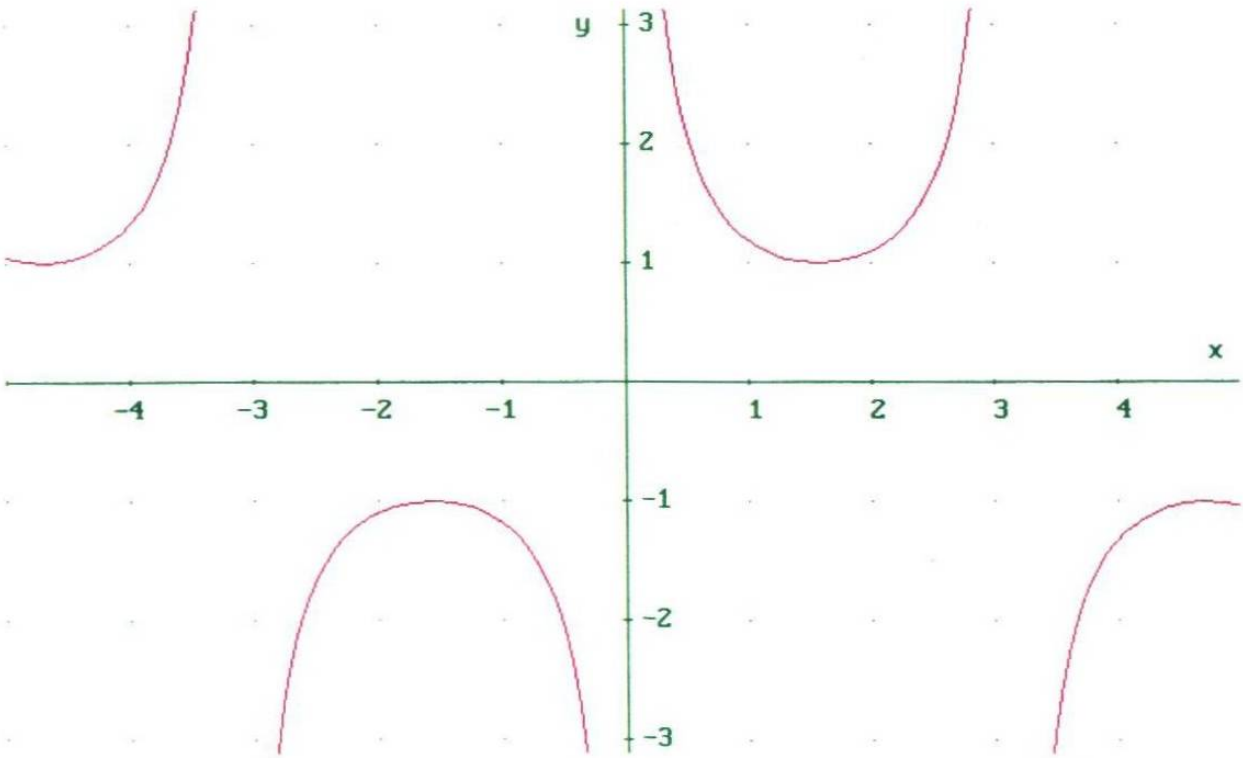
COT (x)

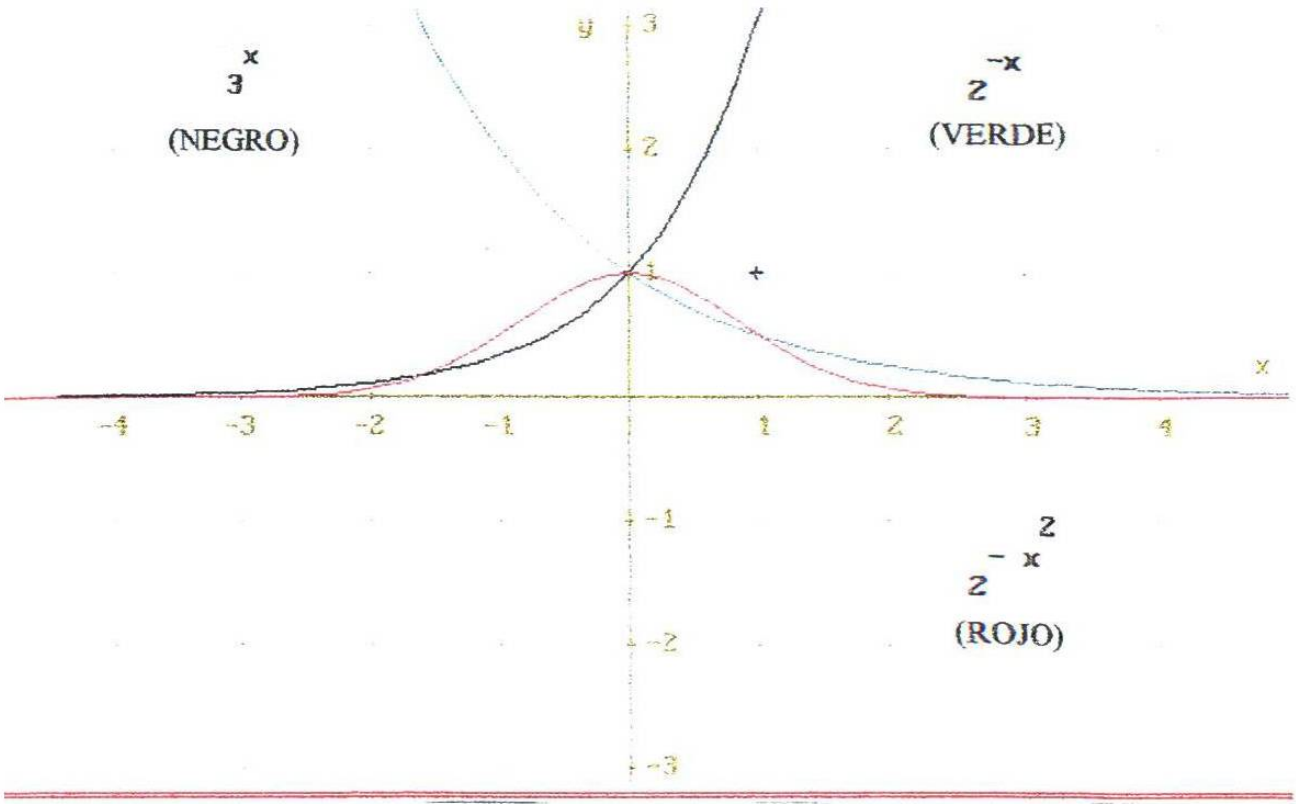


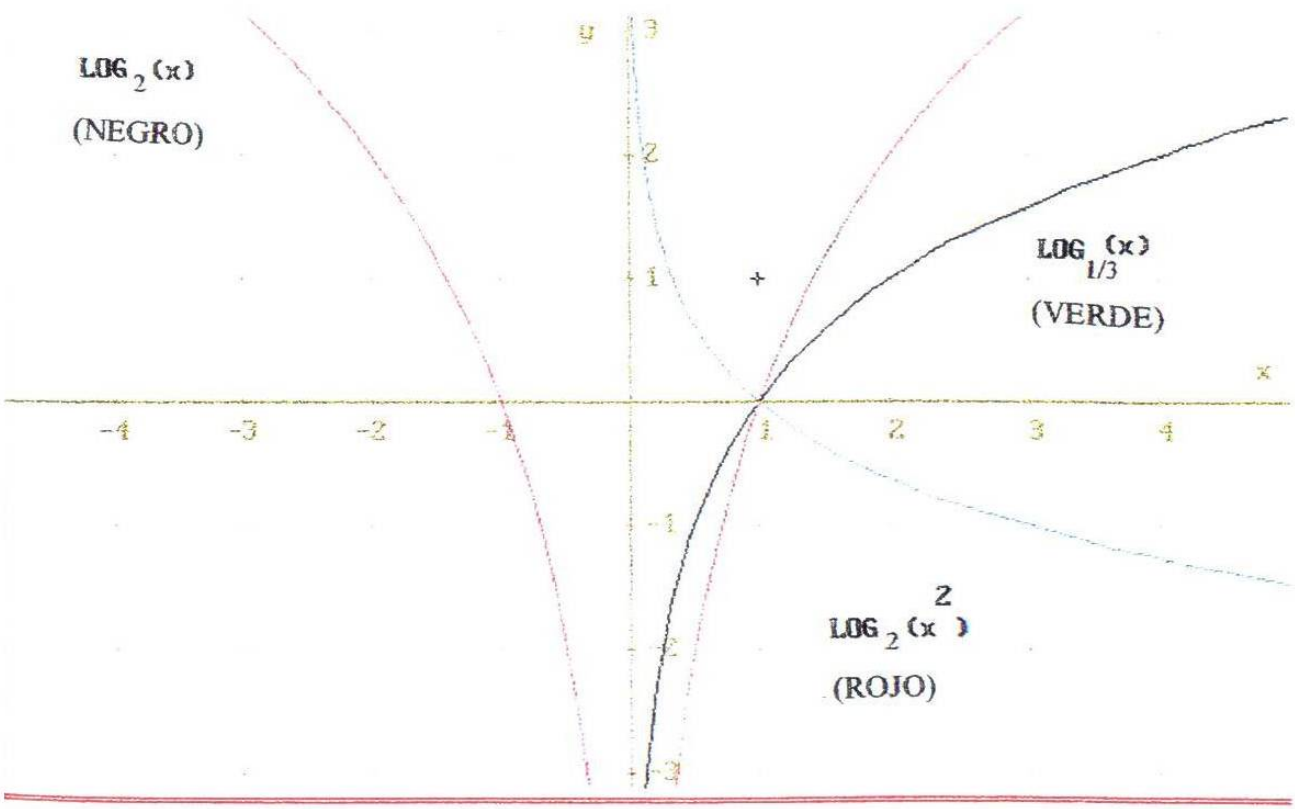
SEC(x)

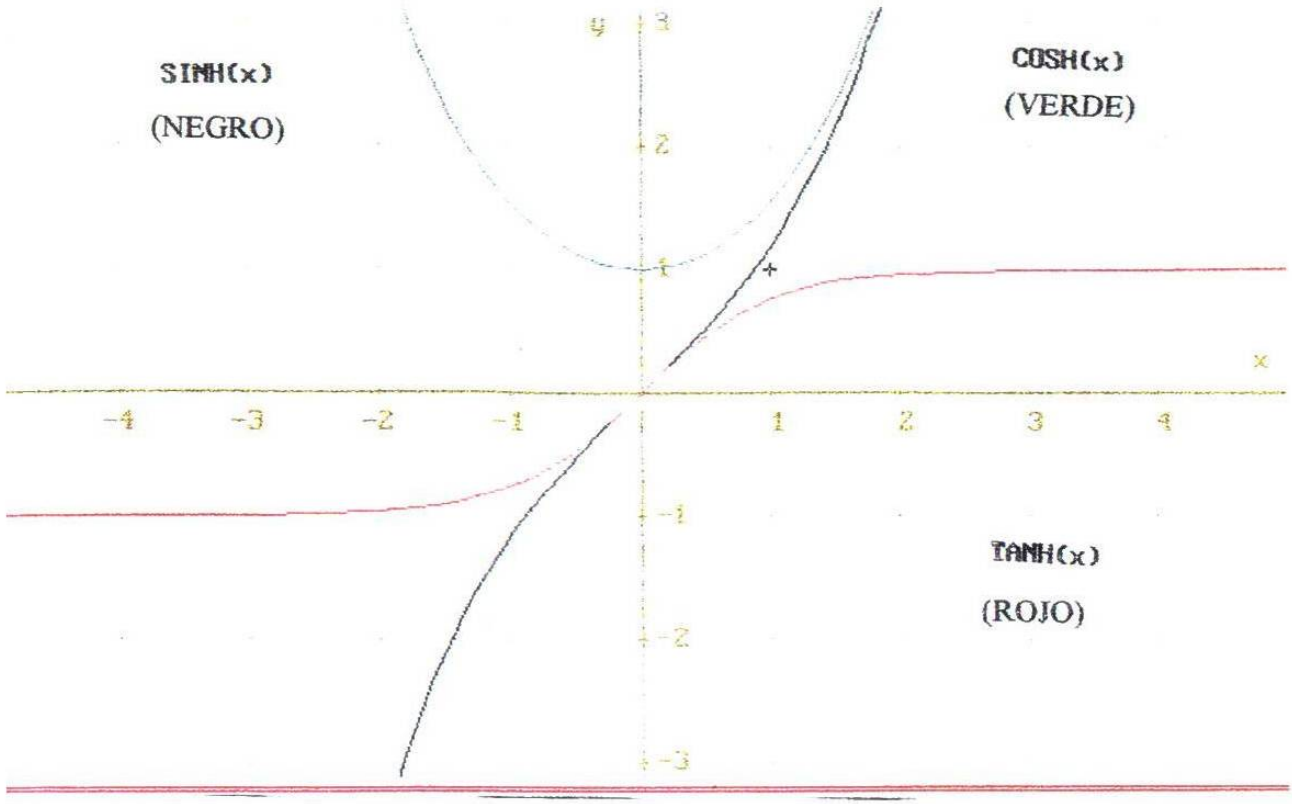


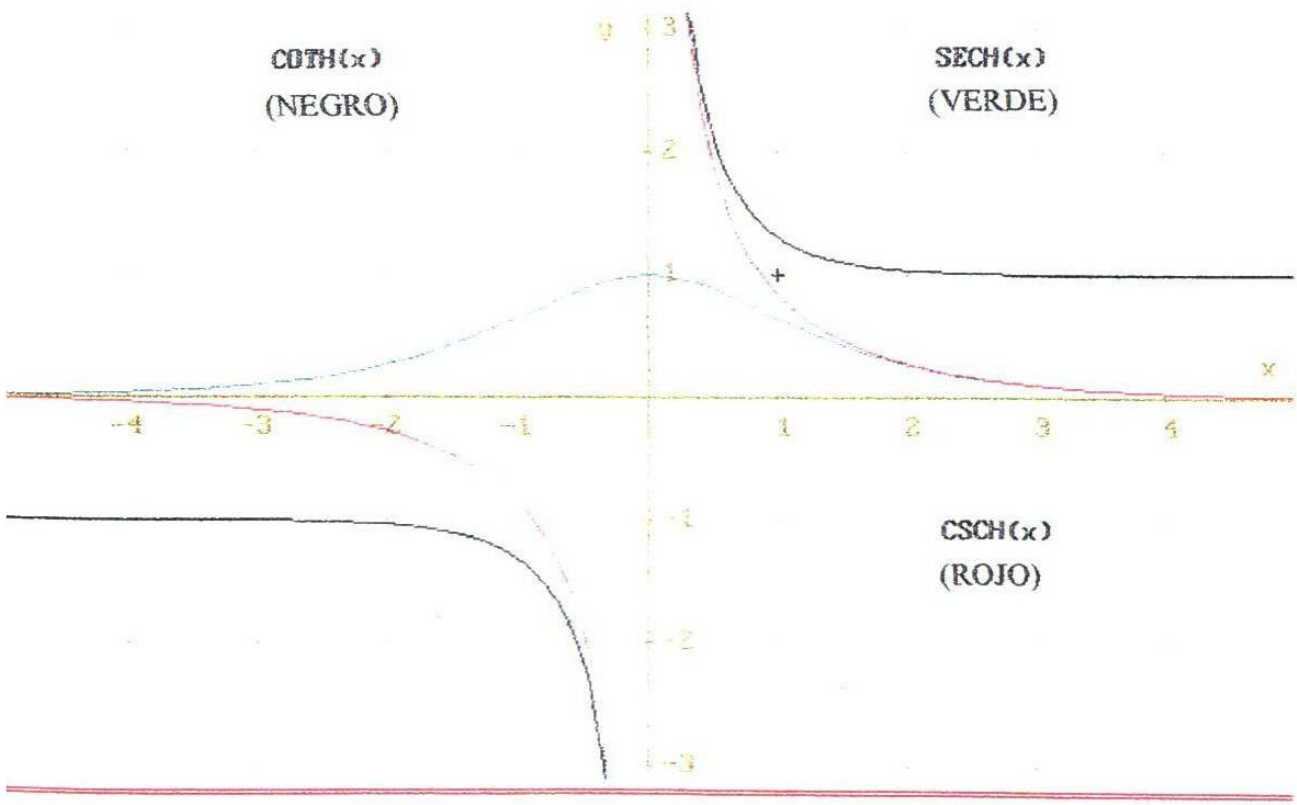
CSC(x)




3^x
(NEGRO)
2^{-x}
(VERDE)
2^{-x^2}
(ROJO)
y
x
3
2
1
-1
-2
-3
-4
-3
-2
-1
1
2
3
4


$LOG_2(x)$
(NEGRO)
$LOG_{1/3}(x)$
(VERDE)
$LOG_2(x^2)$
(ROJO)
y
x
3
2
1
-1
-2
-3
-4
-3
-2
1
2
3
4


SINH(x)
(NEGRO)
COSH(x)
(VERDE)
TANH(x)
(ROJO)
y
x
3
2
1
-1
-2
-3
-4
-3
-2
-1
1
2
3
4

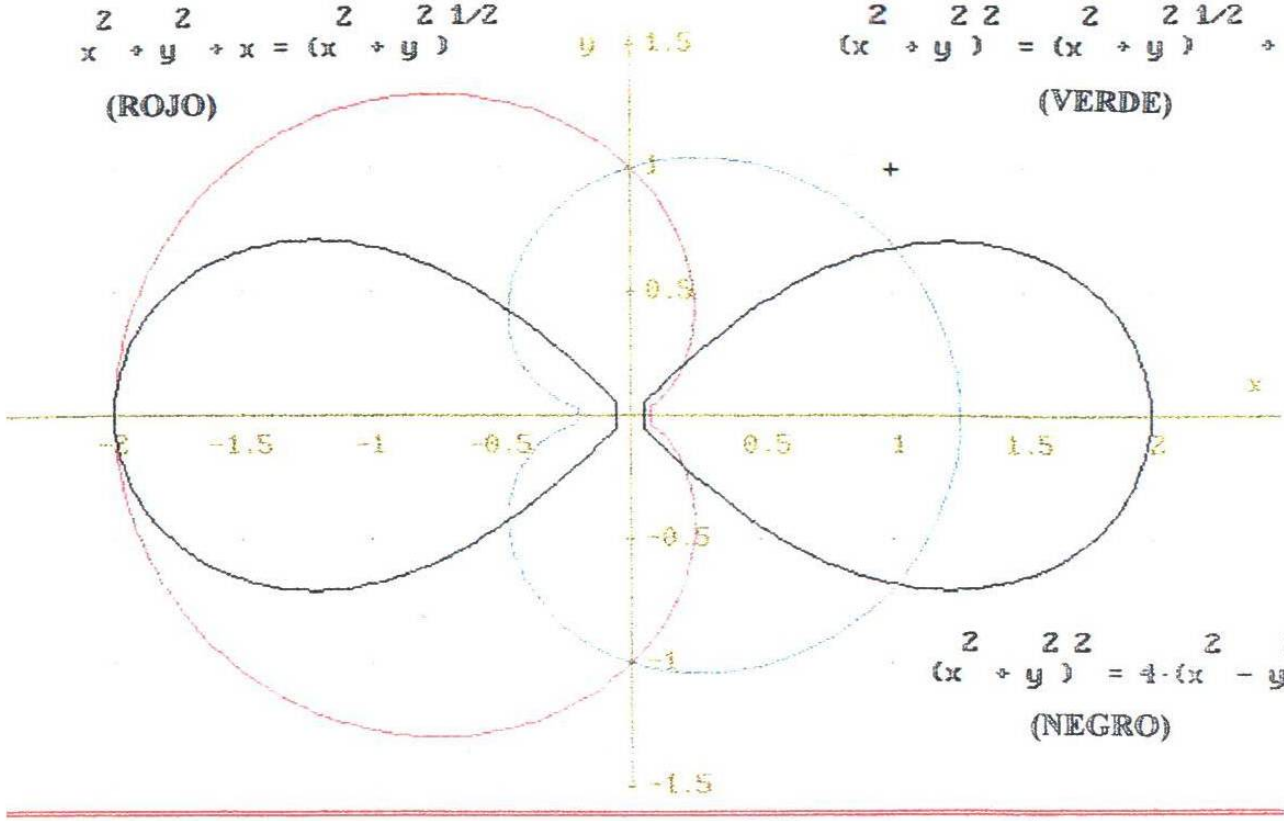

COTH(x)
(NEGRO)
SECH(x)
(VERDE)
CSCH(x)
(ROJO)
y
x
3
2
1
-1
-2
-3
-4
-3
-2
-1
1
2
3
4

$$x^2 + y^2 + x = (x^2 + y^2)^{1/2}$$

(ROJO)

$$(x^2 + y^2)^2 = (x^2 + y^2)^{1/2} + x$$

(VERDE)



$$(x^2 + y^2)^2 = 4 \cdot (x^2 - y^2)$$

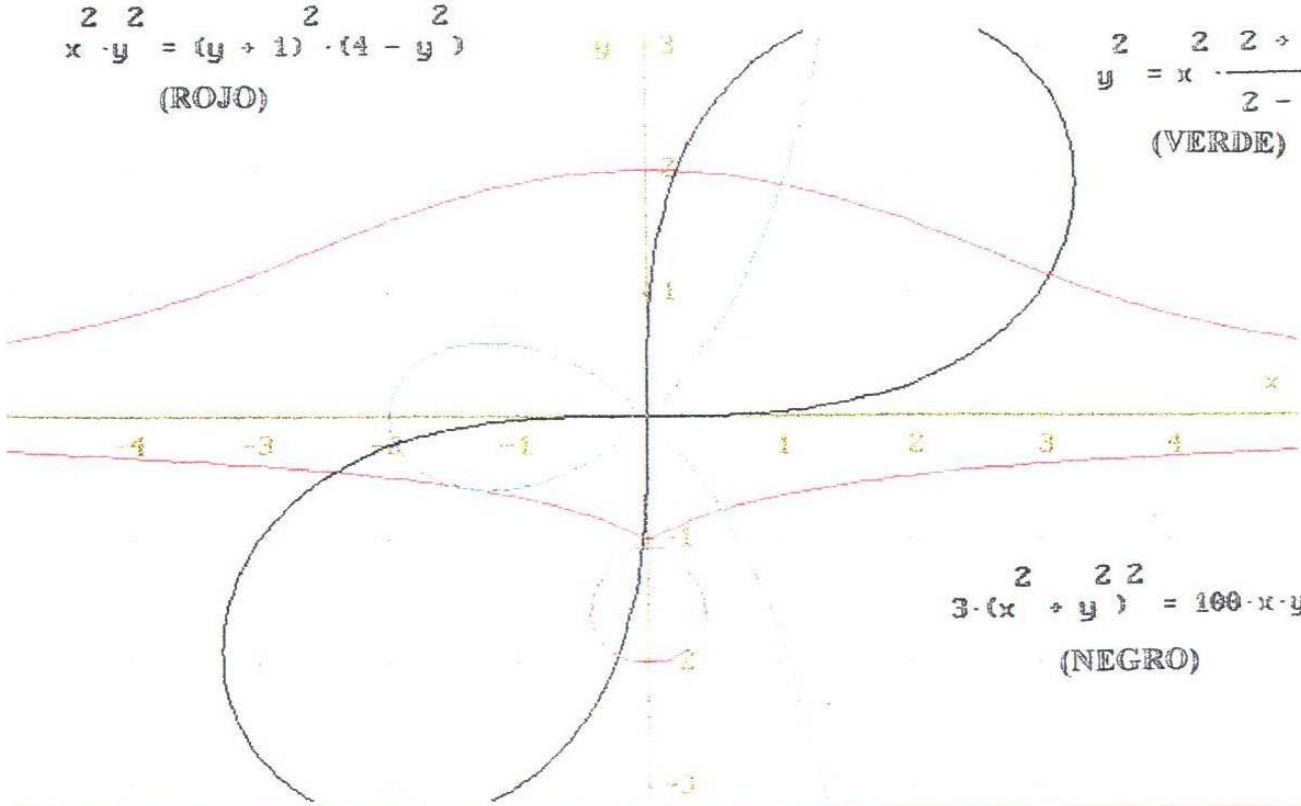
(NEGRO)

$$x^2 \cdot y^2 = (y + 1) \cdot (4 - y^2)$$

(ROJO)

$$y^2 = x^2 \cdot \frac{2 + x}{2 - x}$$

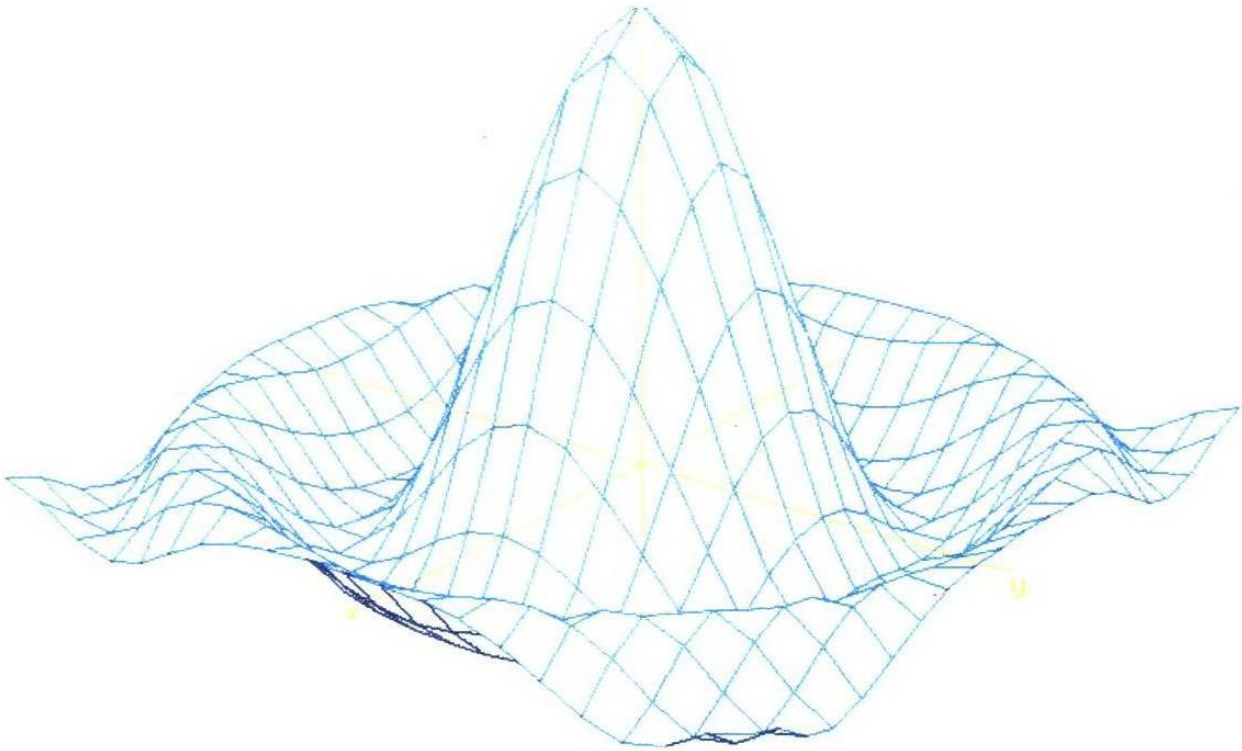
(VERDE)



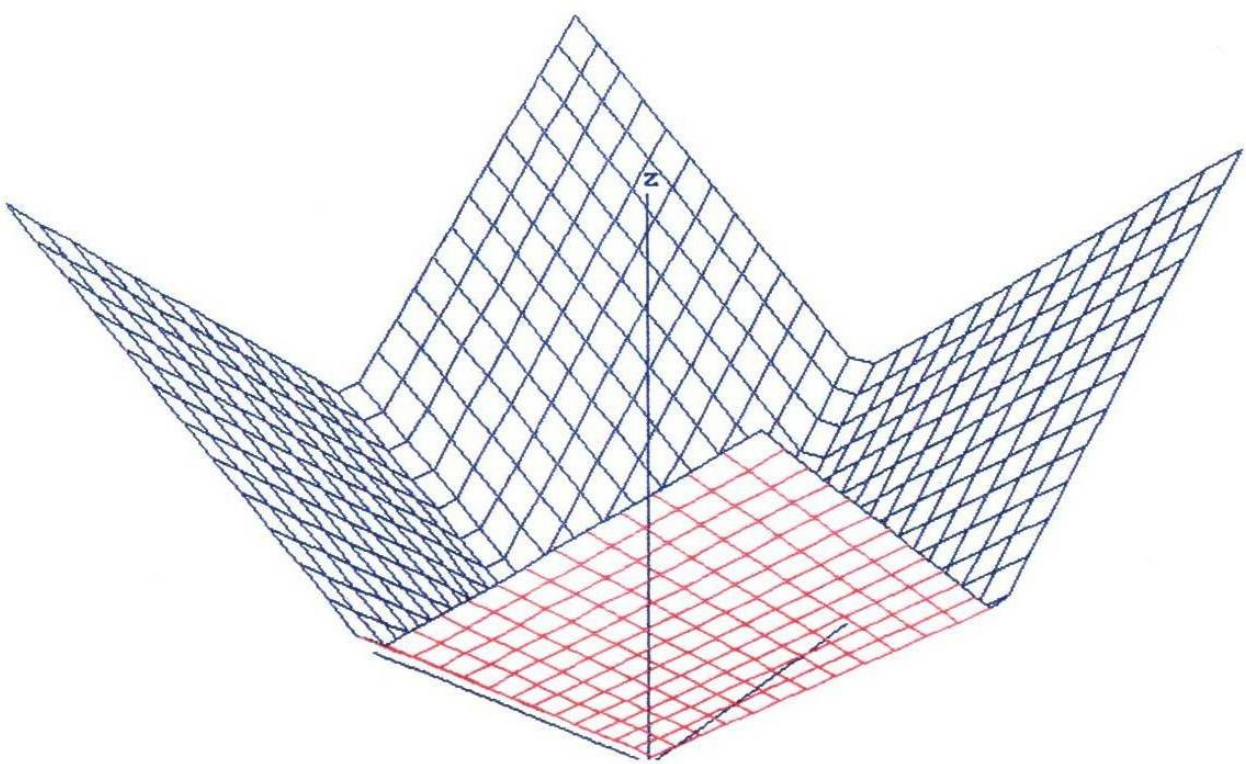
$$3 \cdot (x^2 + y^2)^2 = 100 \cdot x \cdot y$$

(NEGRO)

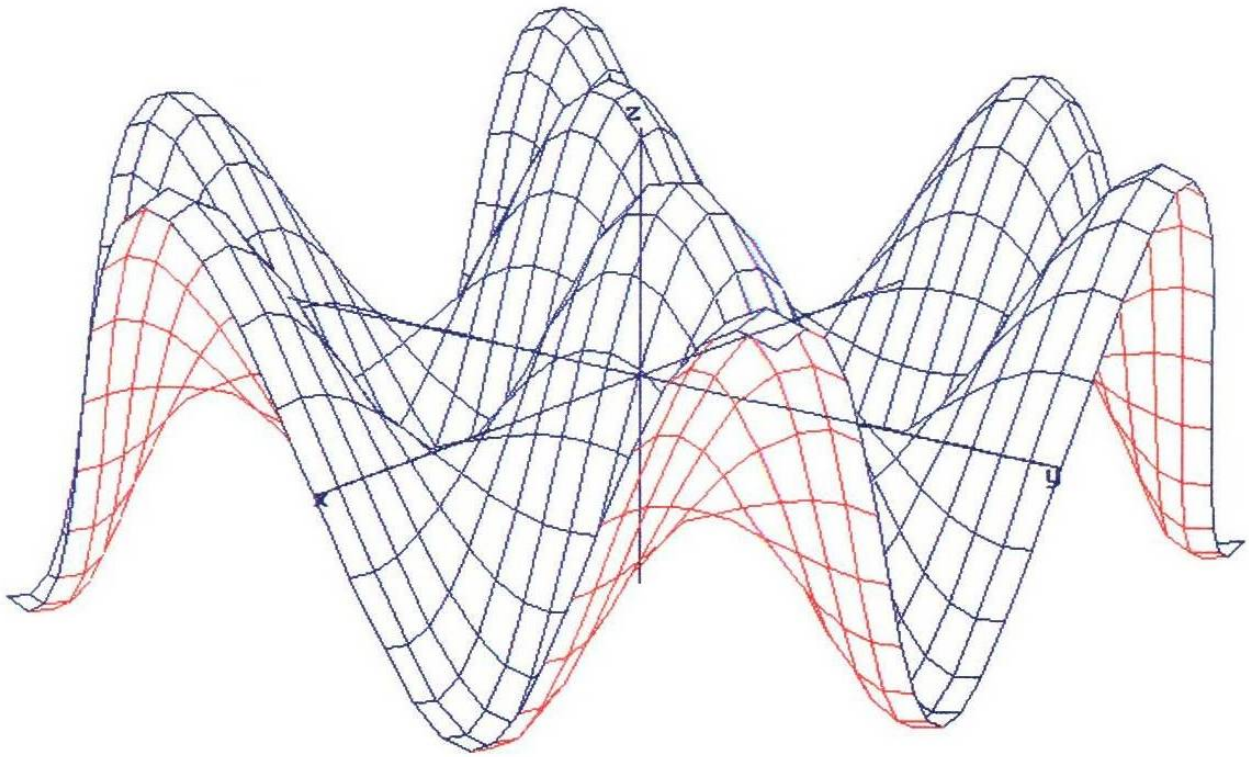
$$\frac{}{3 + x^2 + y^2}$$



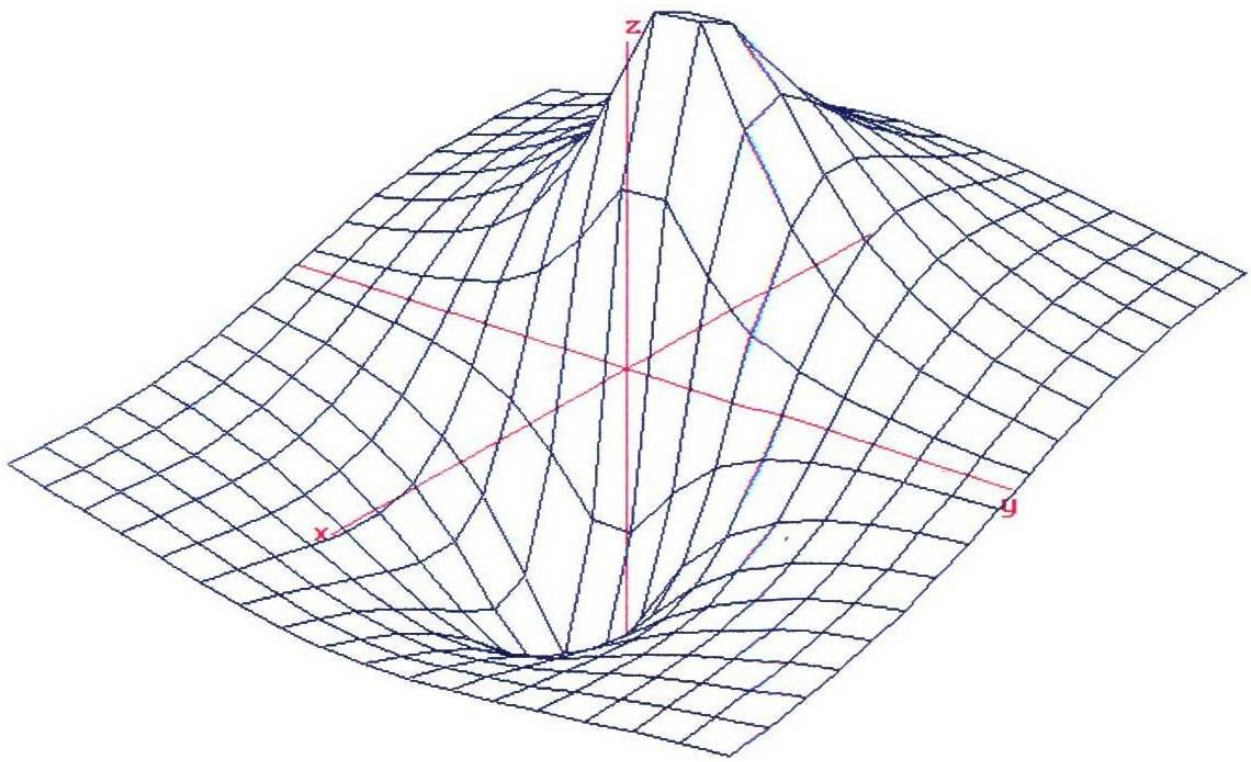
$$|x| + |y|$$



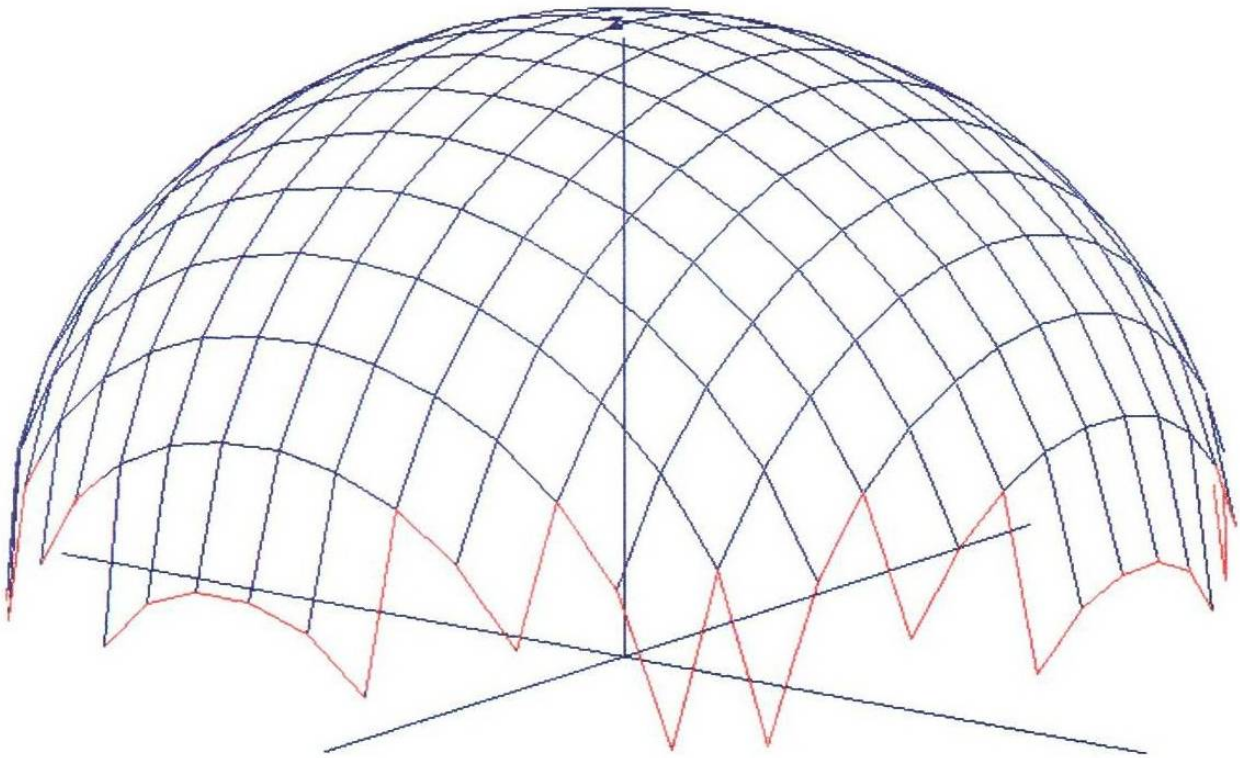
SIN(x) SIN(y)



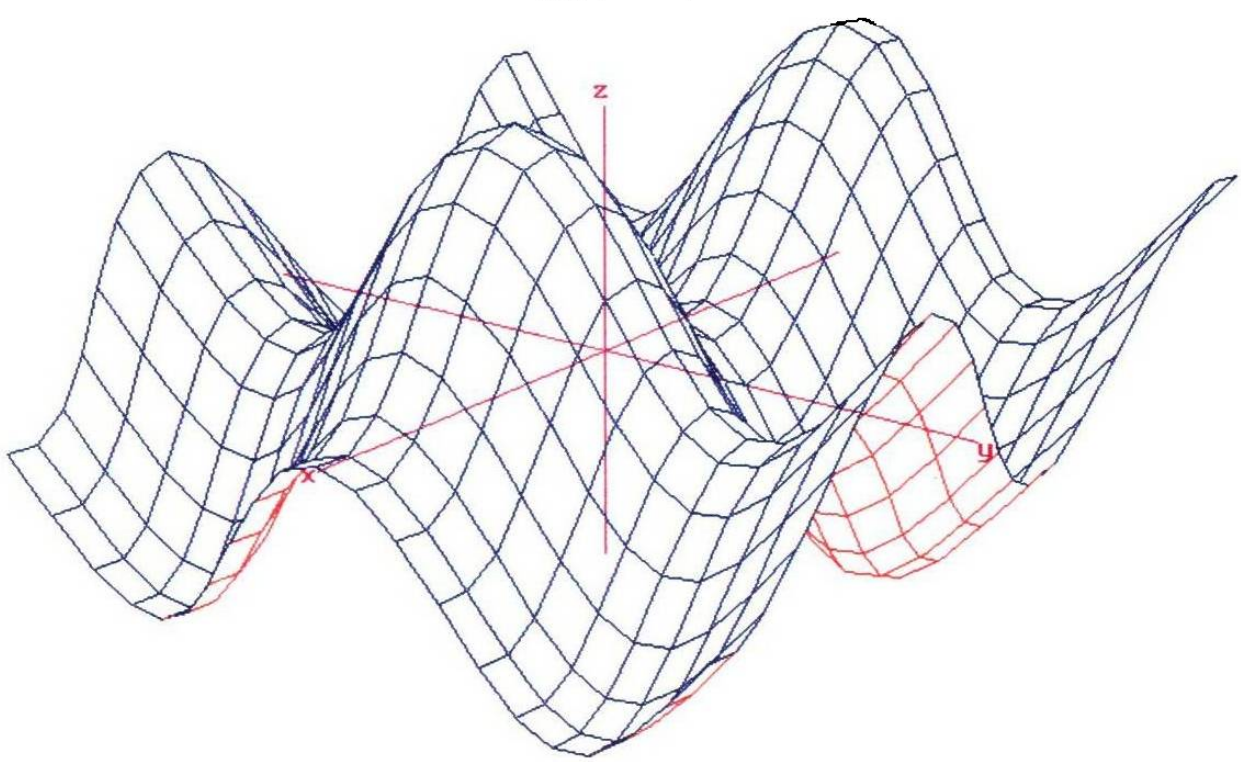
$$\frac{-4 \cdot x}{x^2 + y^2 + 1}$$



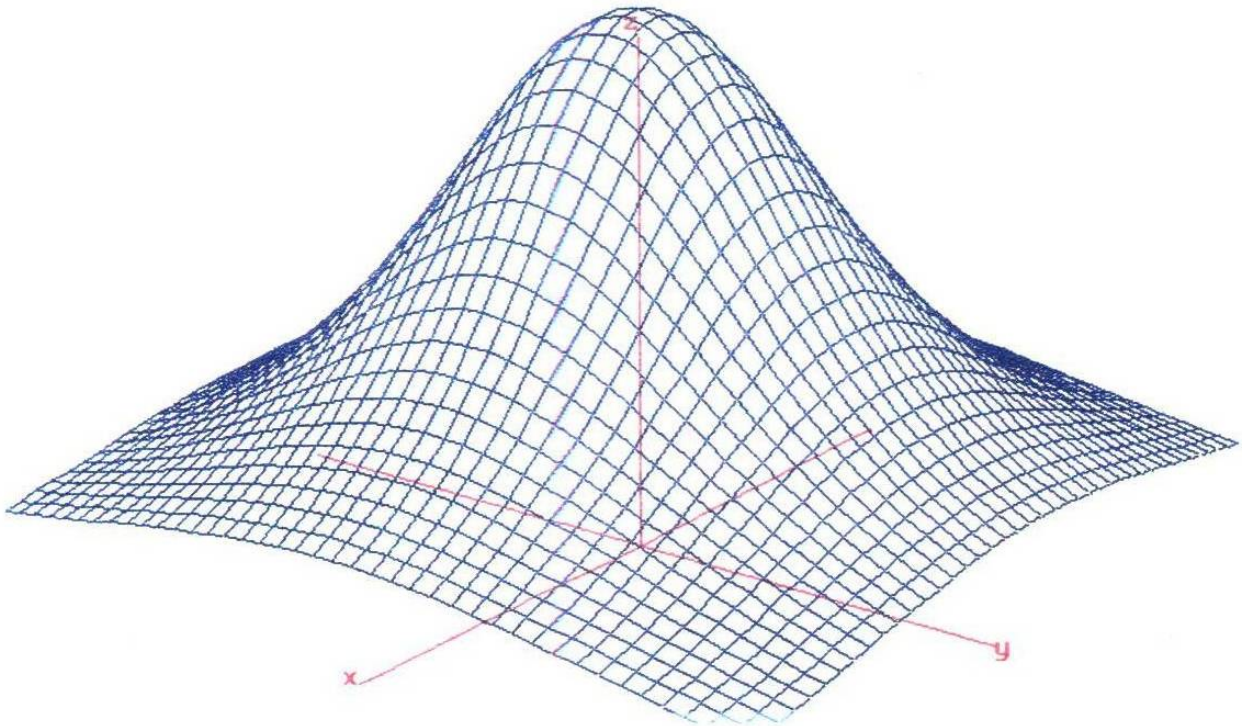
$\sqrt{(16 - x^2 - y^2)}$



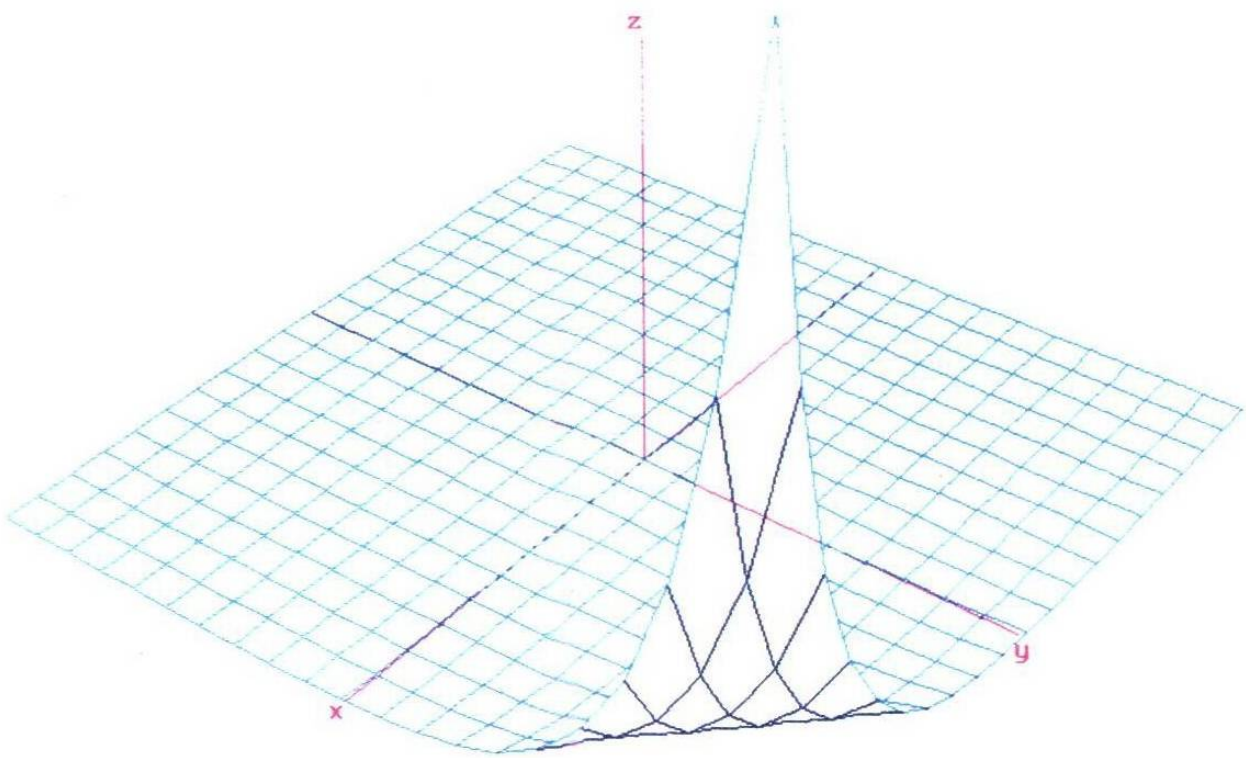
SIN(x) + COS(y)

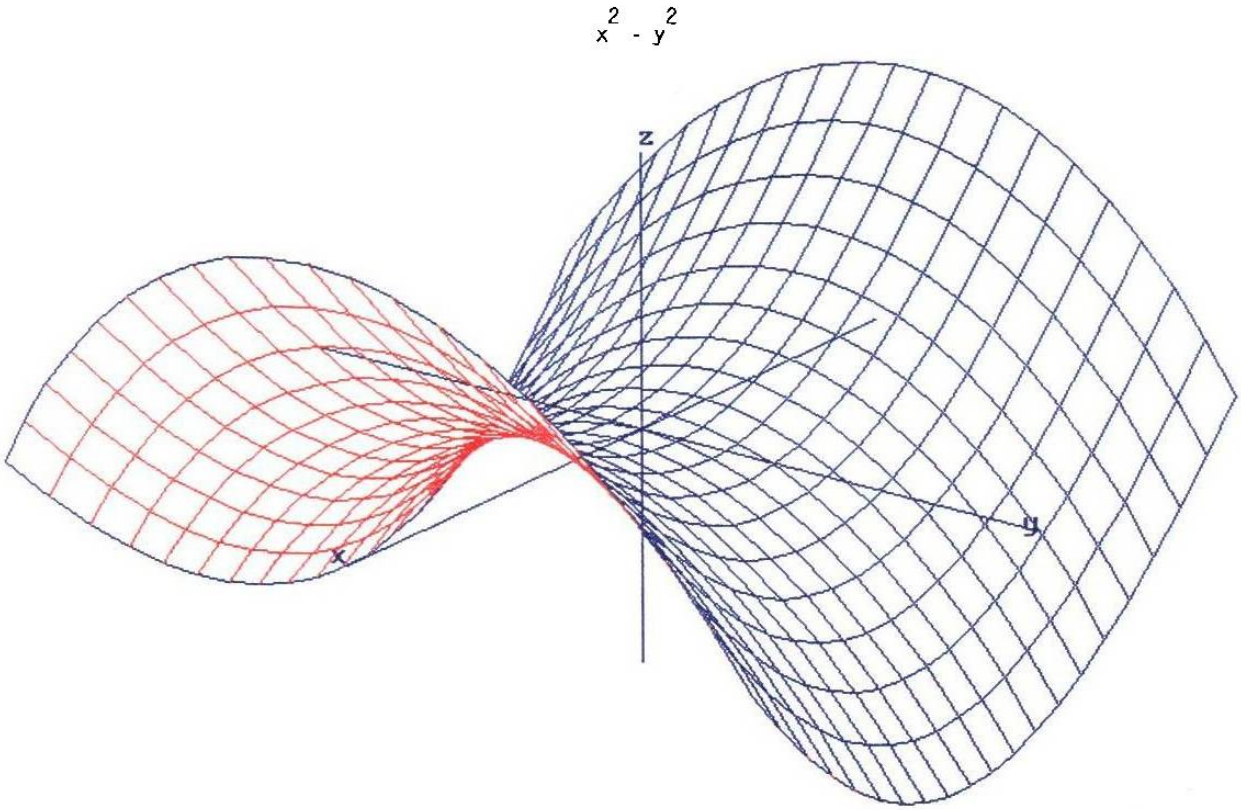


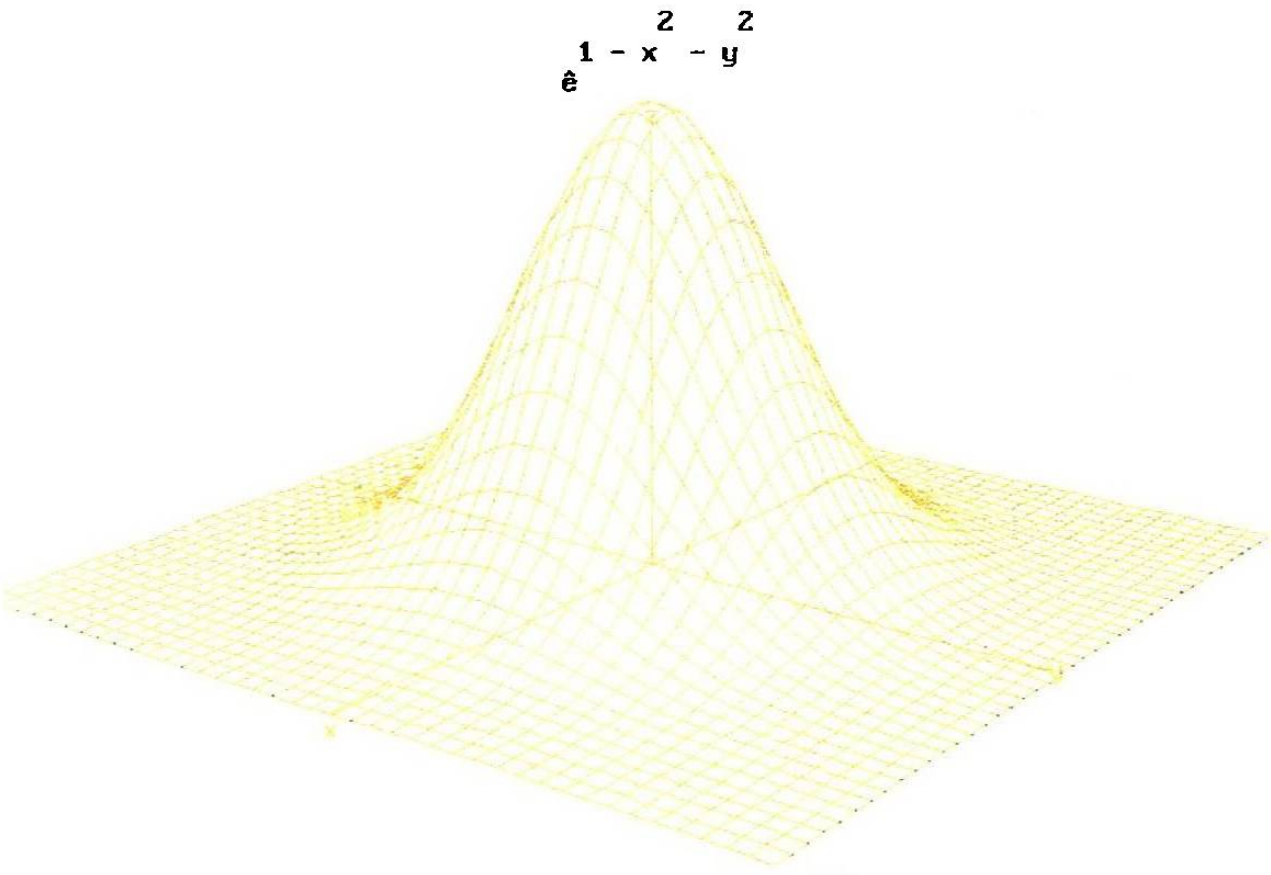
$$\frac{1}{x^2 + y^2 + 9}$$



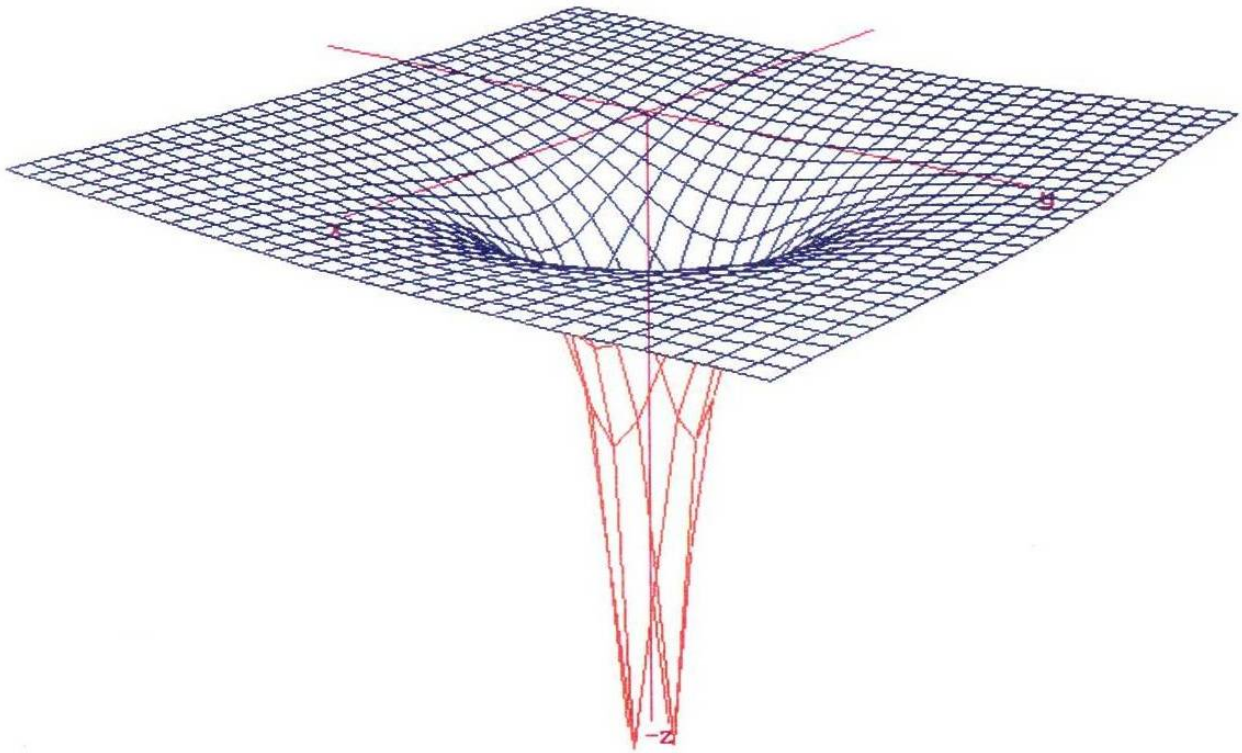
$$e^{x + y}$$



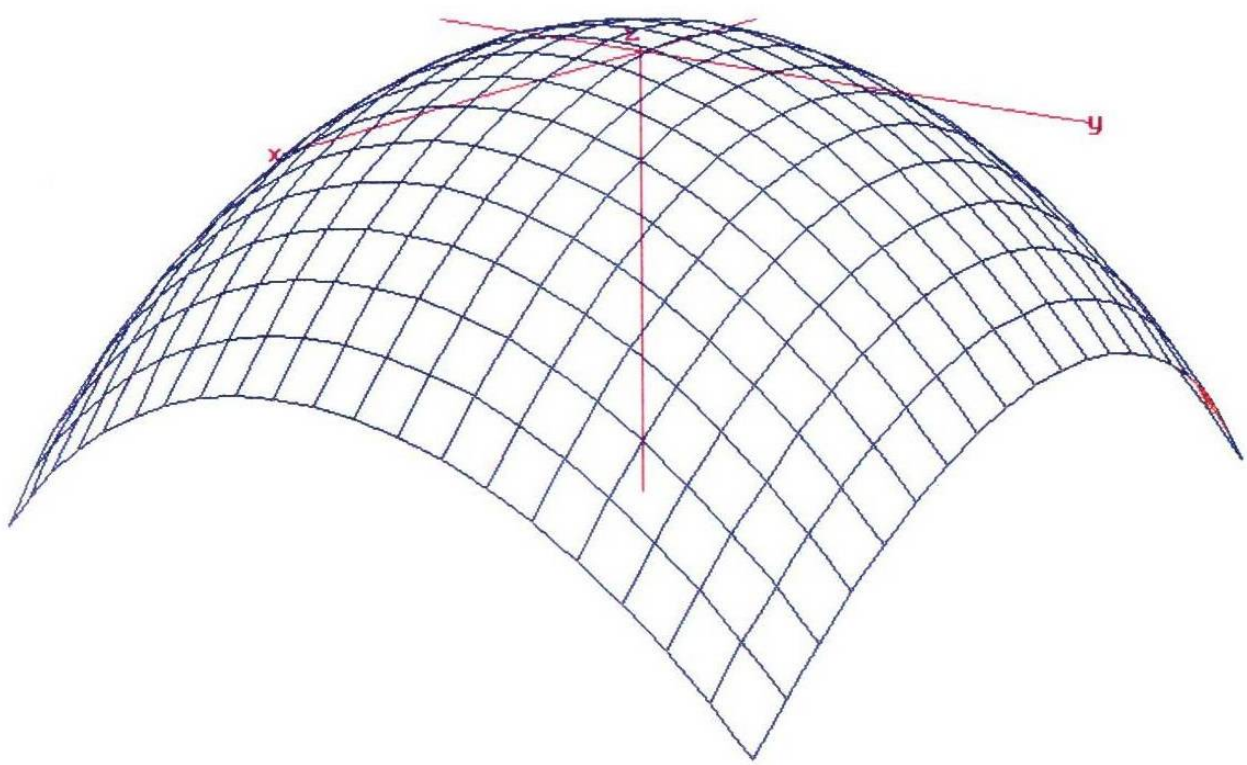

x 2 - y 2
z
x
y


2 2
1 - x - y
ê

$$-\frac{1}{\sqrt{(x^2 + y^2)}}$$



$$2 - x^2 - y^2$$



ANEXO 2

$$x^3 - 3 \cdot x^2 + 21 \cdot x - 19$$

$x = 1$

$x = 1 + 3 \cdot \sqrt{2} \cdot i$

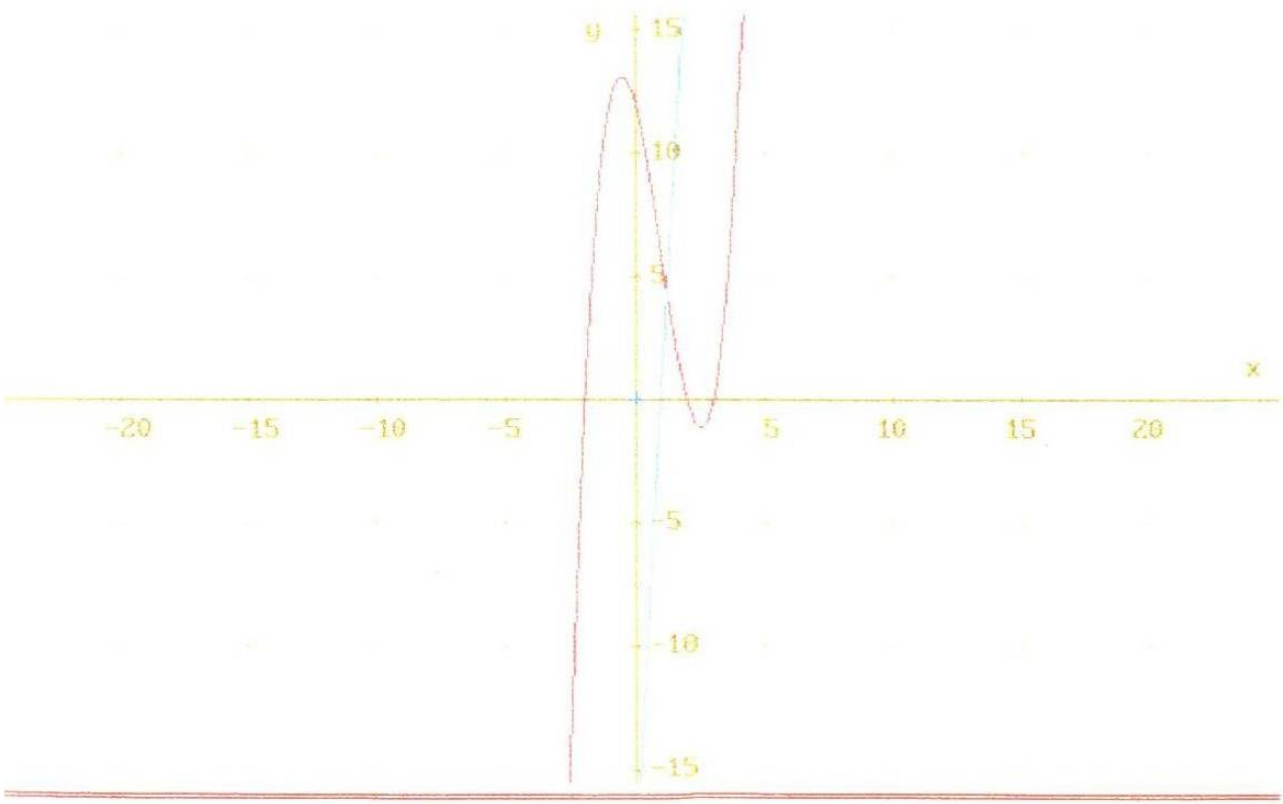
$x = 1 - 3 \cdot \sqrt{2} \cdot i$

$$x^3 - 3 \cdot x^2 - 4 \cdot x + 12$$

$x = 2$

$x = -2$

$x = 3$



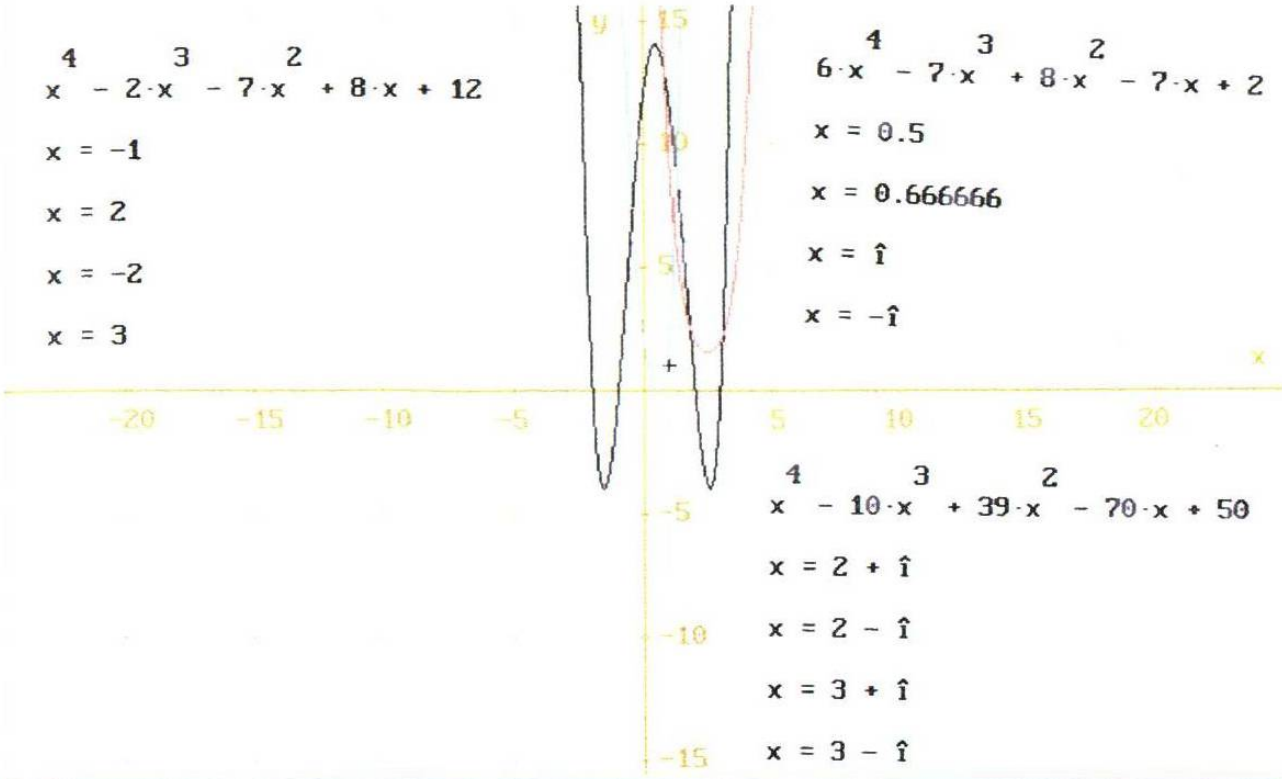
$$x^4 - 2\cdot x^3 - 7\cdot x^2 + 8\cdot x + 12$$

$x = -1$

$x = 2$

$x = -2$

$x = 3$



$$6\cdot x^4 - 7\cdot x^3 + 8\cdot x^2 - 7\cdot x + 2$$

$x = 0.5$

$x = 0.666666$

$x = \hat{\imath}$

$x = -\hat{\imath}$

$$x^4 - 10\cdot x^3 + 39\cdot x^2 - 70\cdot x + 50$$

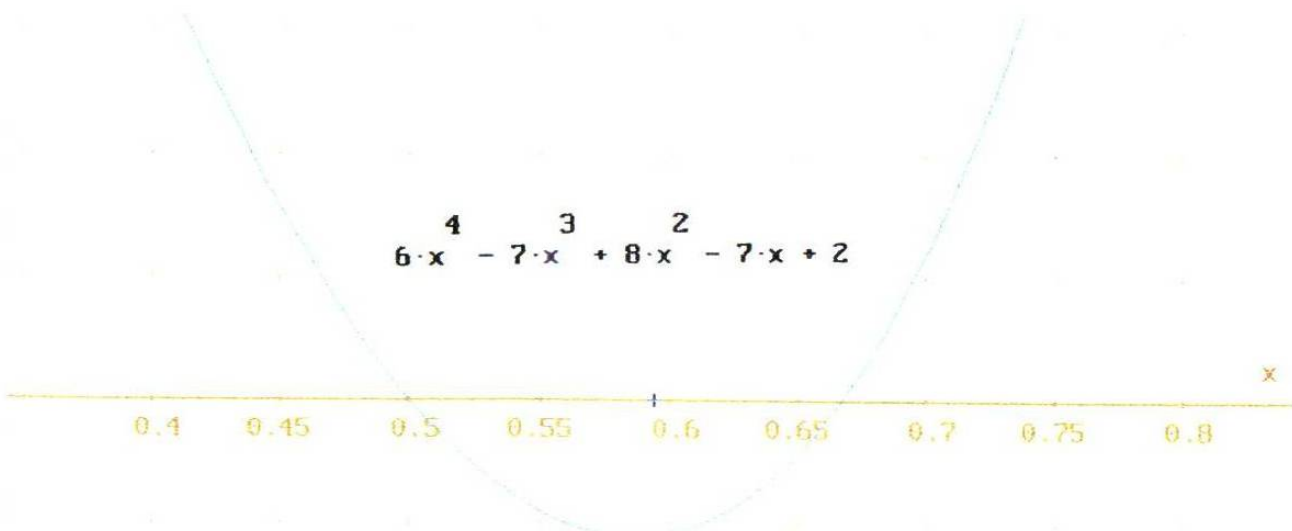
$x = 2 + \hat{\imath}$

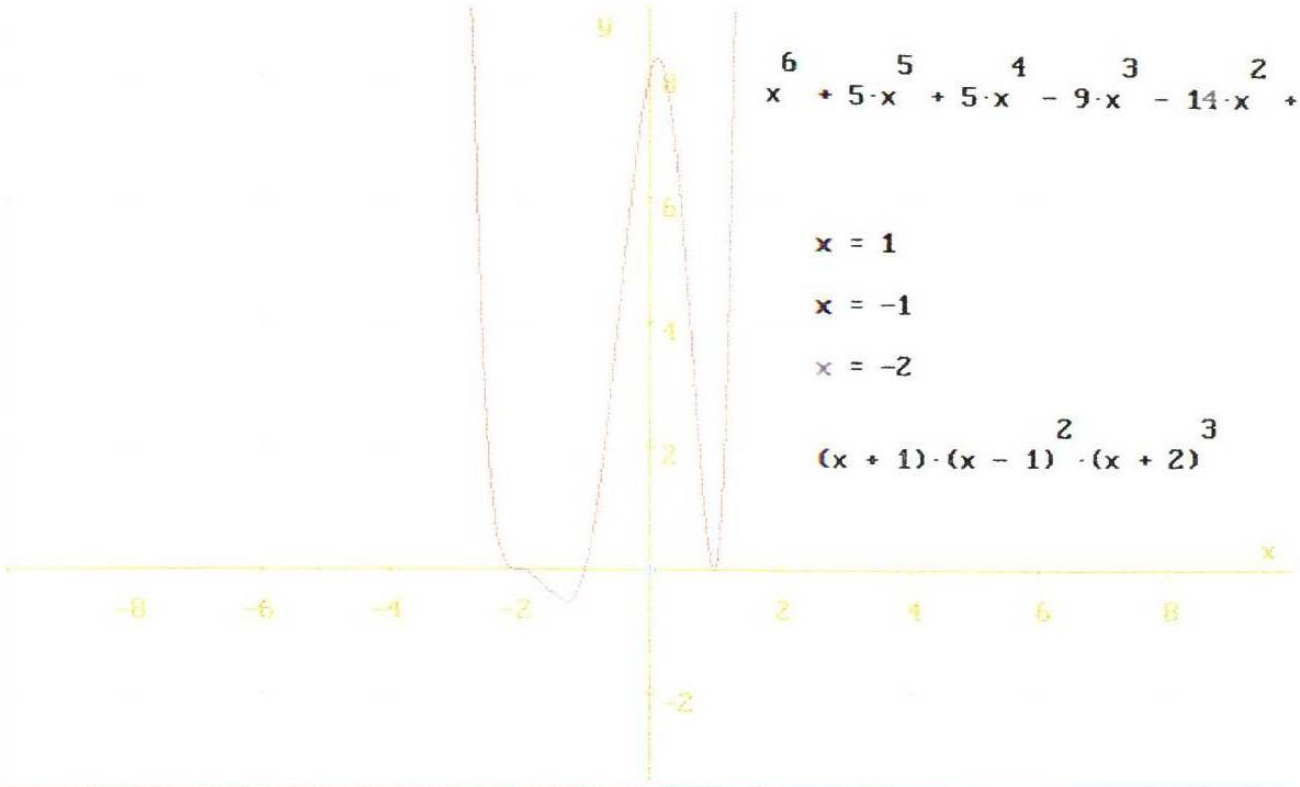
$x = 2 - \hat{\imath}$

$x = 3 + \hat{\imath}$

$x = 3 - \hat{\imath}$

$$6\cdot x^4 - 7\cdot x^3 + 8\cdot x^2 - 7\cdot x + 2$$





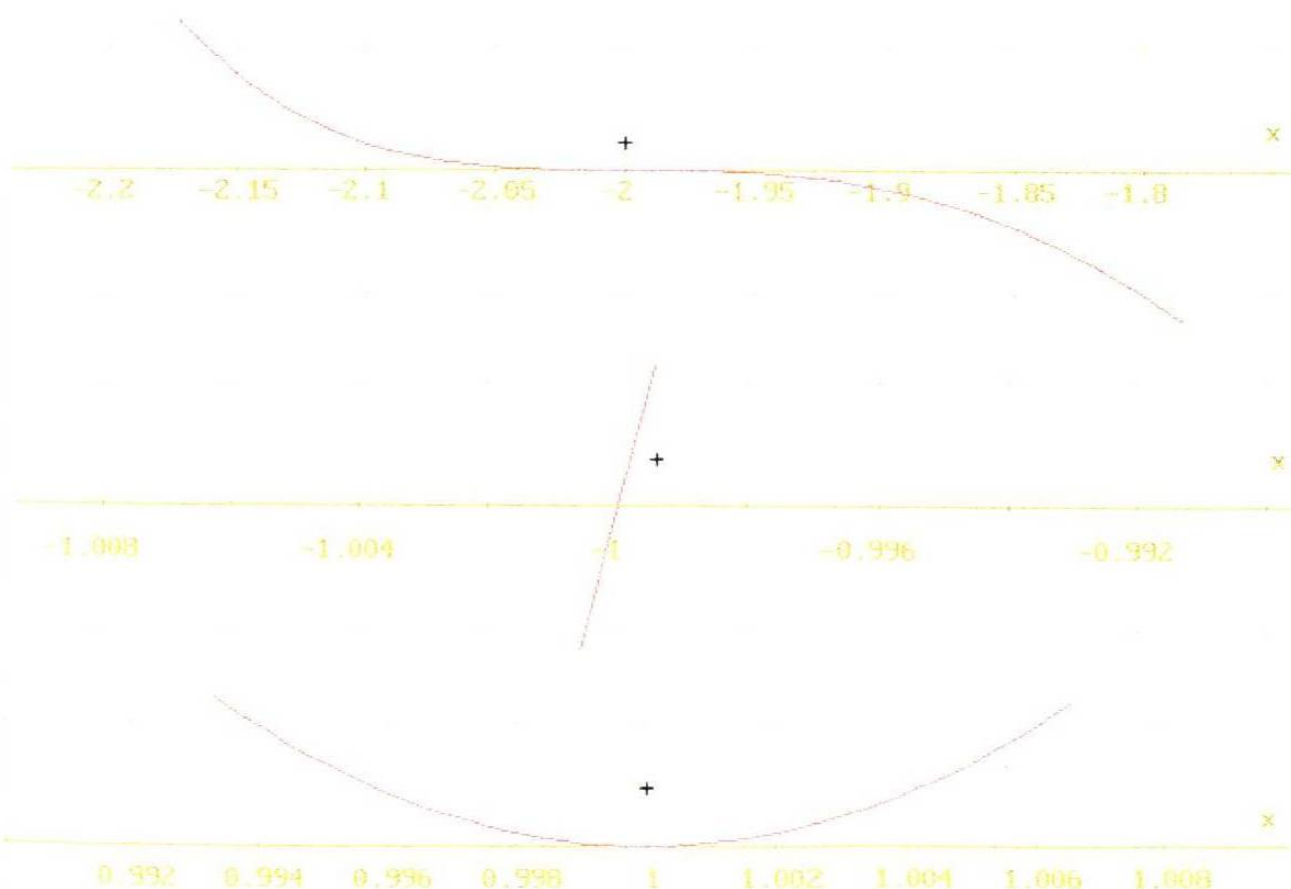
$$x^6 + 5 \cdot x^5 + 5 \cdot x^4 - 9 \cdot x^3 - 14 \cdot x^2 + 4 \cdot x + 8$$

$x = 1$

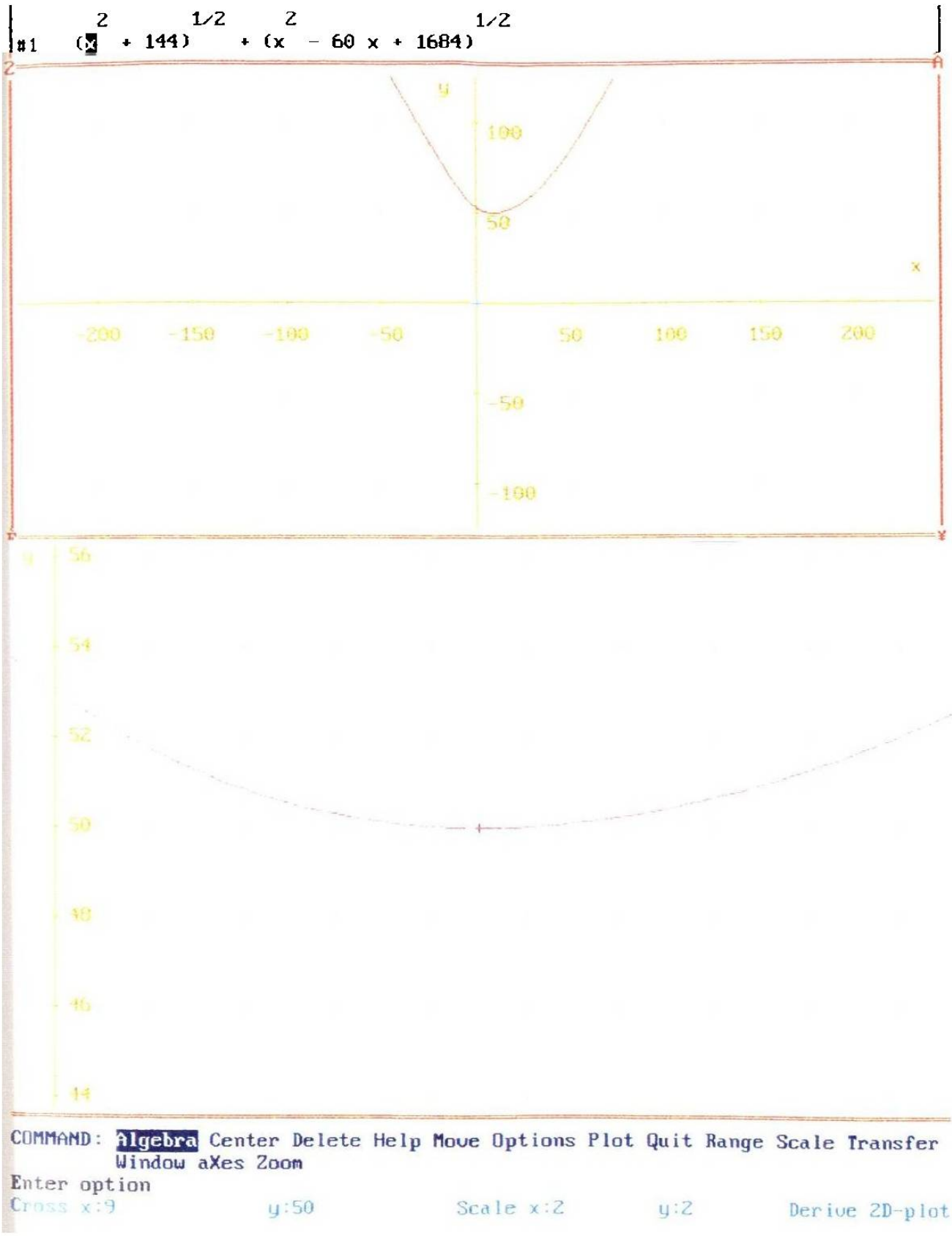
$x = -1$

$x = -2$

$$(x + 1) \cdot (x - 1)^2 \cdot (x + 2)^3$$



ANEXO 3



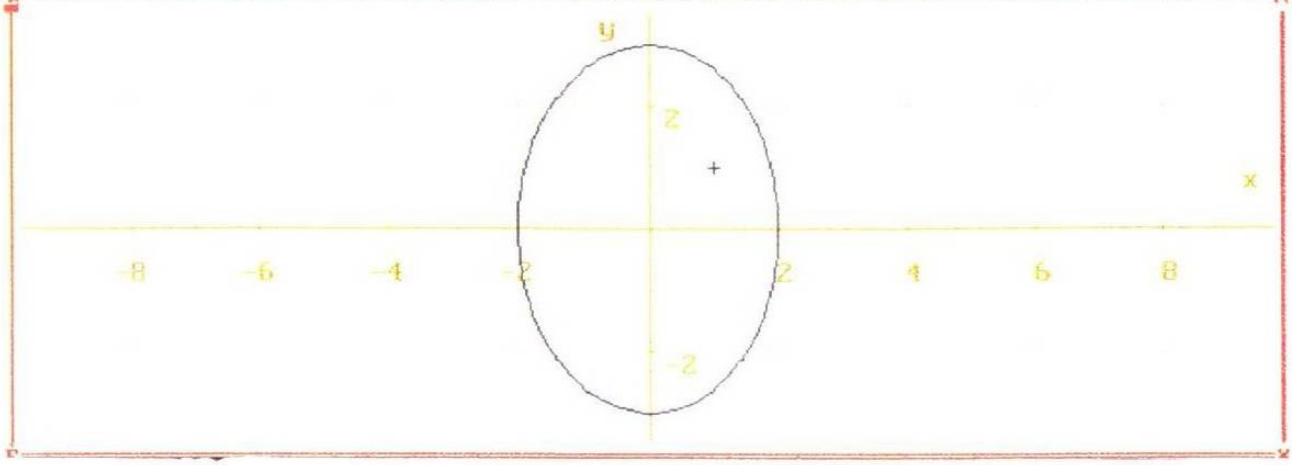
Aqui se concluye gráficamente, que el valor minimo de la funcion es y=50 cuando x 9

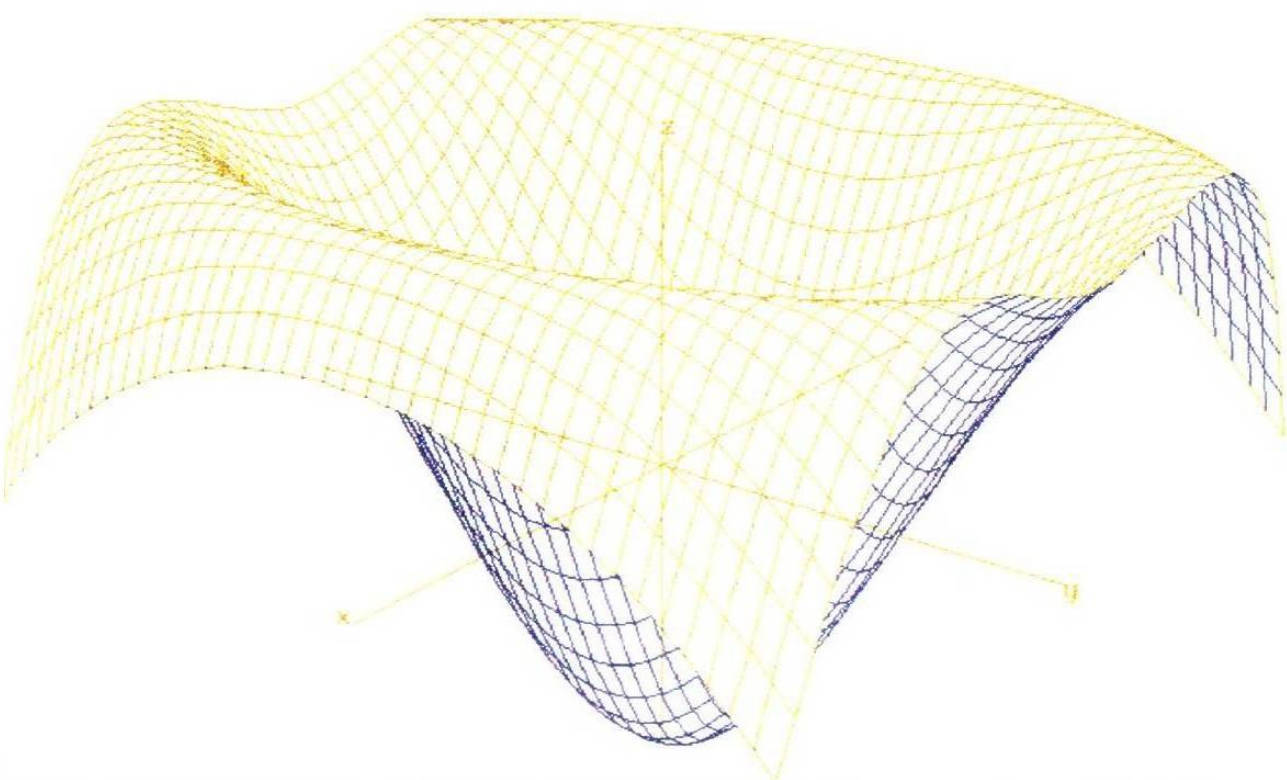
ANEXO 4

CASO PARTICULAR a=2 , b=3 , h =1

$$\#1: \quad z = -\cos\left[\frac{\pi}{2}\cdot\left[\frac{x^2}{4}+\frac{y^2}{9}\right]^{1/2}\right]$$

$$\#2: \quad \frac{x^2}{4}+\frac{y^2}{9}=1$$





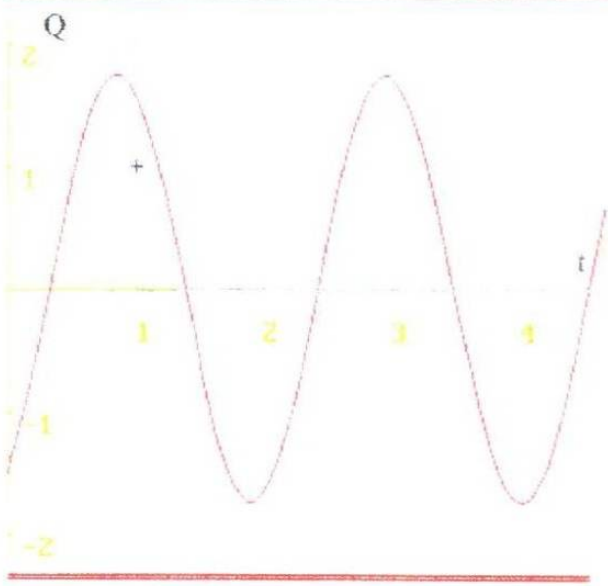
ANEXO 5

INTERPRETACIÓN GRAFICA DE LA SOLUCION

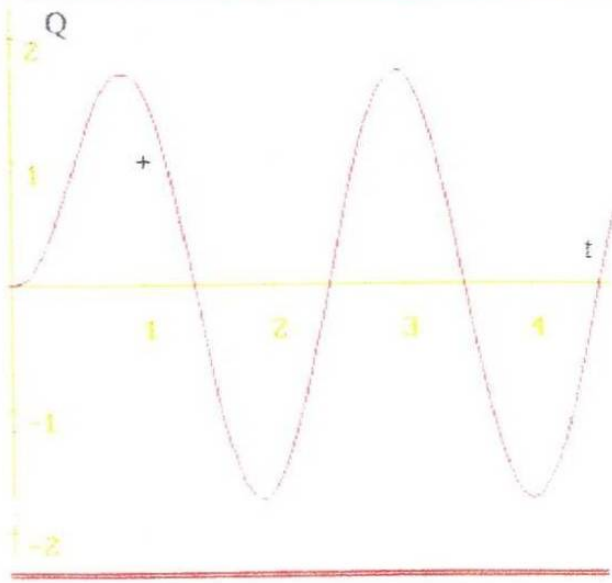
$$Q = \frac{25}{52}\cdot[2\cdot SIN(3\cdot t) - 3\cdot COS(3\cdot t)] + \frac{25}{52}\cdot e^{-4\cdot t}\cdot[3\cdot COS(3\cdot t) + 2\cdot SIN(3\cdot t)]$$

TERMINO PERMANENTE (ROJO)

TERMINO TRANSITORIO (VERDE)



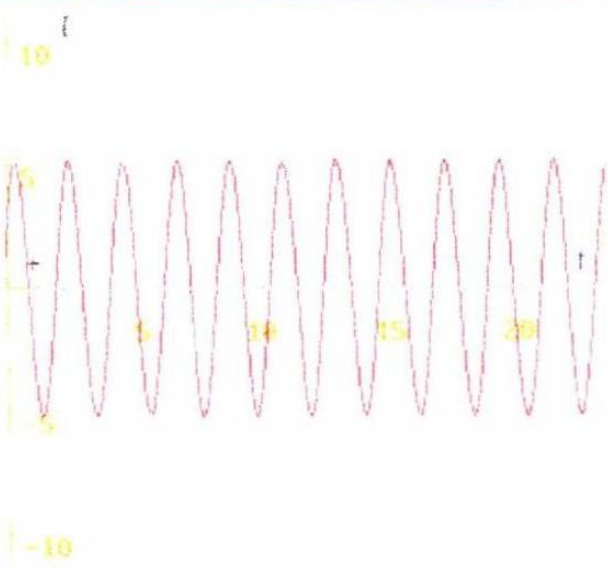
SOLUCION



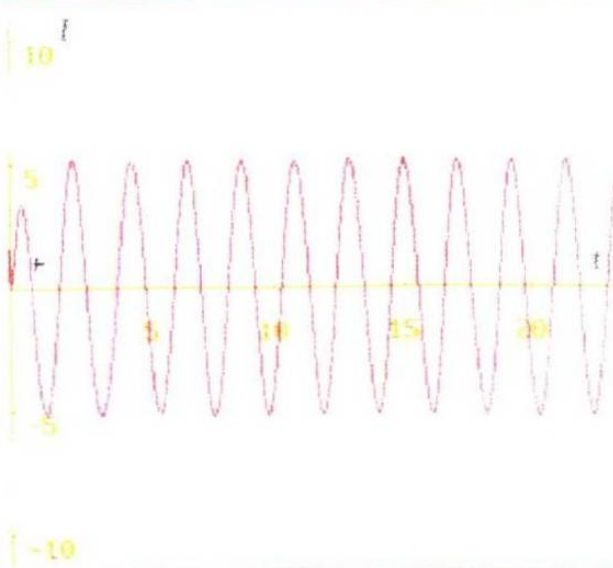
$$I = \frac{75}{52}\cdot[2\cdot COS(3\cdot t) + 3\cdot SIN(3\cdot t)] - \frac{25}{52}\cdot e^{-4\cdot t}\cdot[17\cdot SIN(3\cdot t) + 6\cdot COS(3\cdot t)]$$

TERMINO PERMANENTE (ROJO)

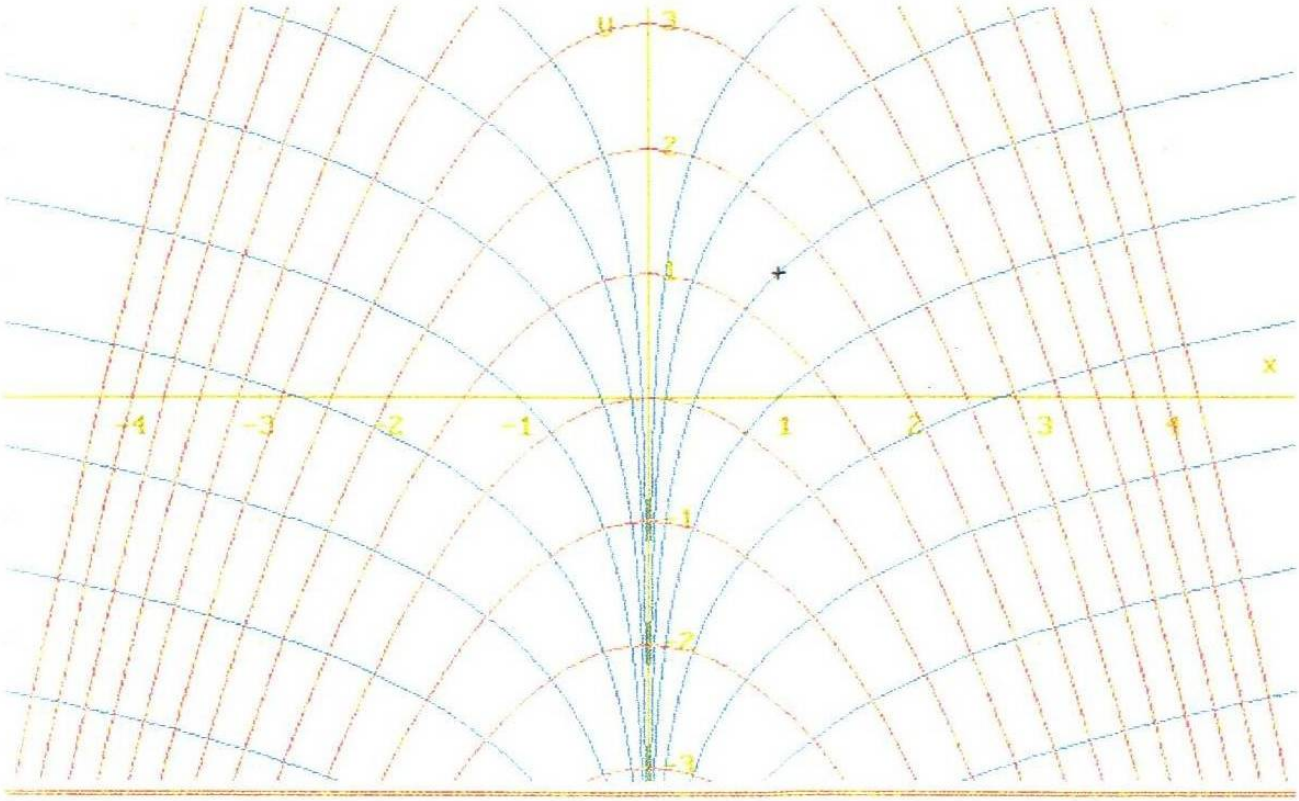
TERMINO TRANSITORIO (VERDE)



SOLUCION



ANEXO 6



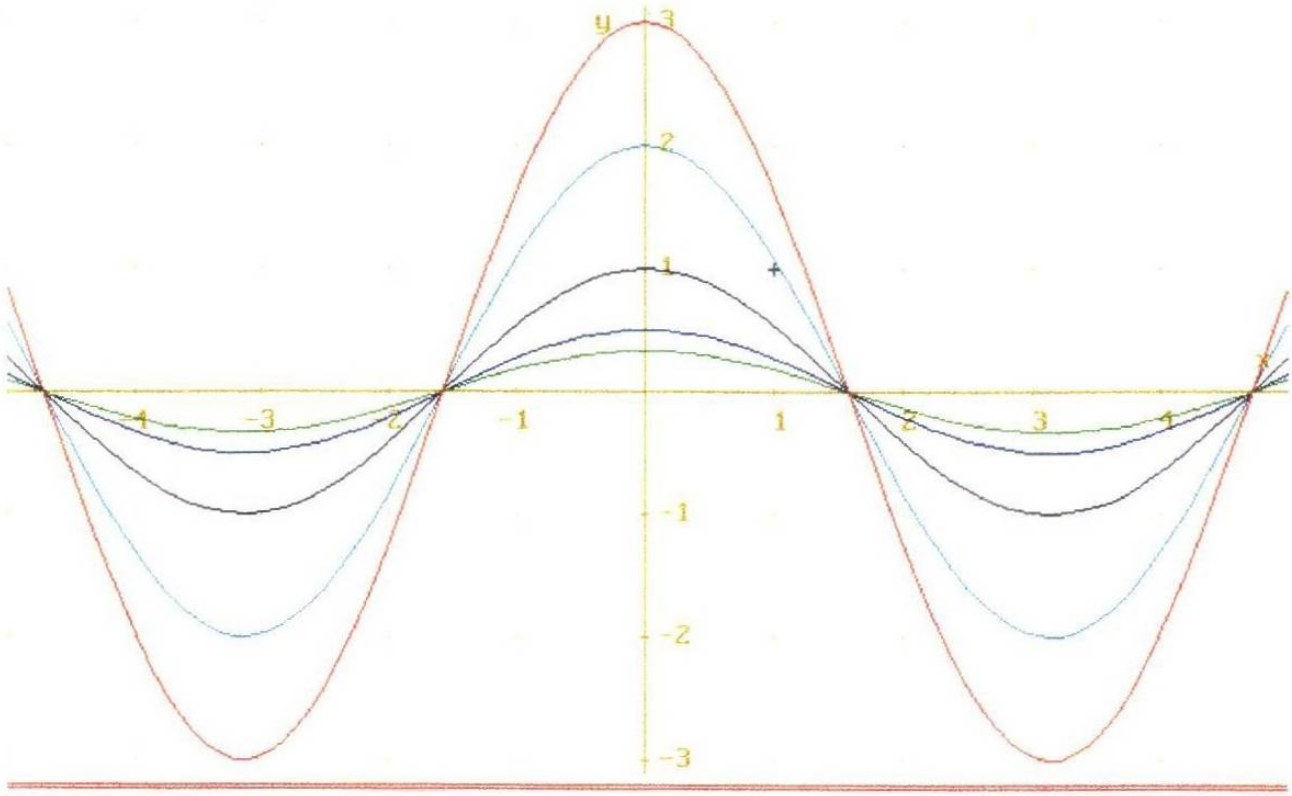
COMMAND: Algebra Center Delete Help Move Options Plot Quit Range Scale Transfer Window aXes Zoom

Enter option

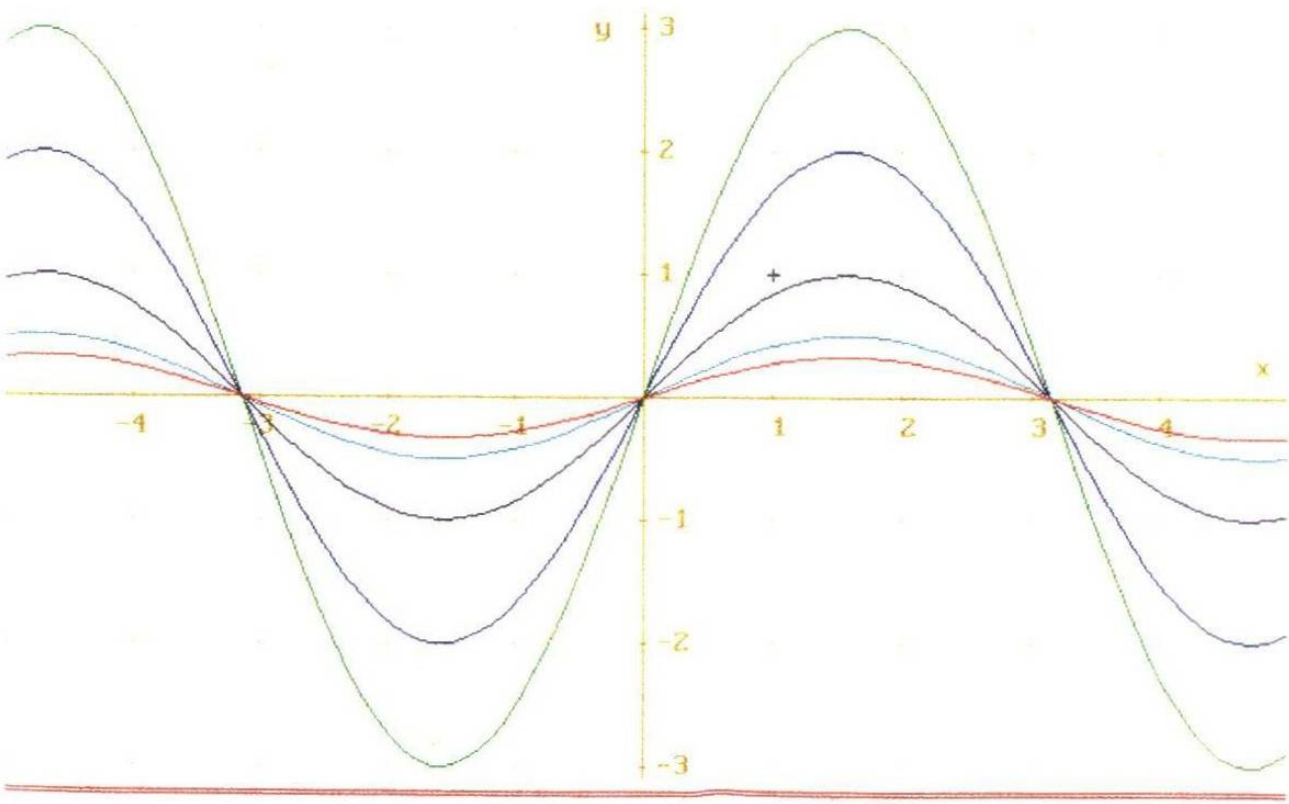
Cross x:1 y:1 Scale x:1 y:1 Derive 2D-plot

ANEXO 7

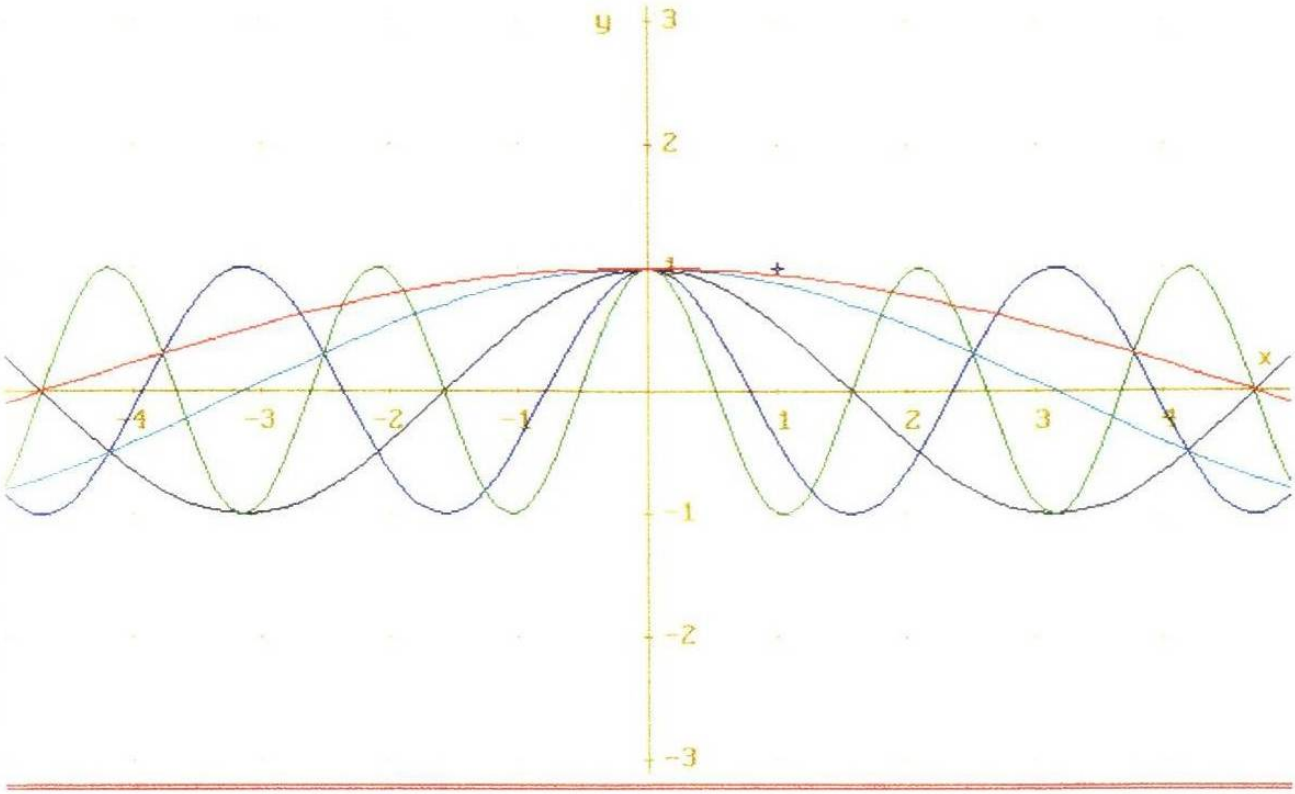
Grafica de la forma acos(t)



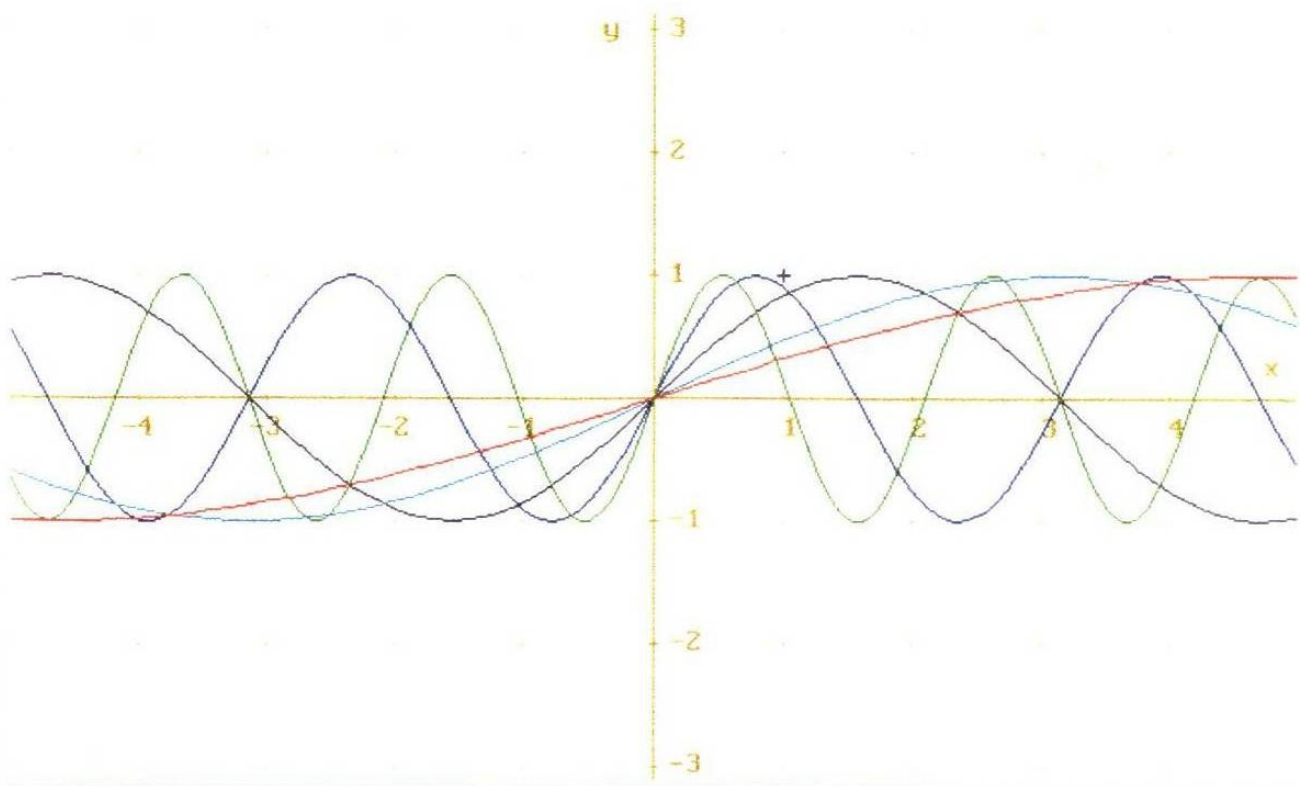
Gráfica de la forma asen(t)



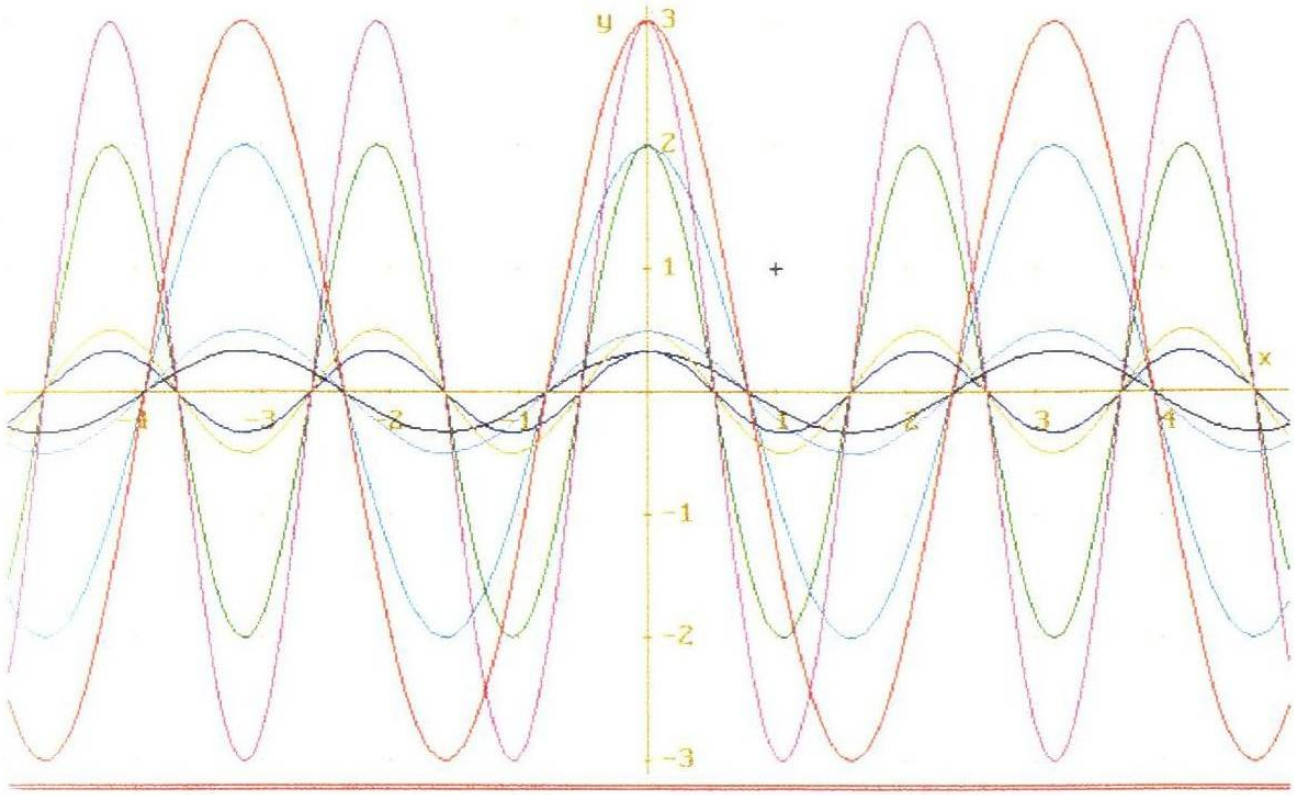
Gráfica de la forma cos (bt)



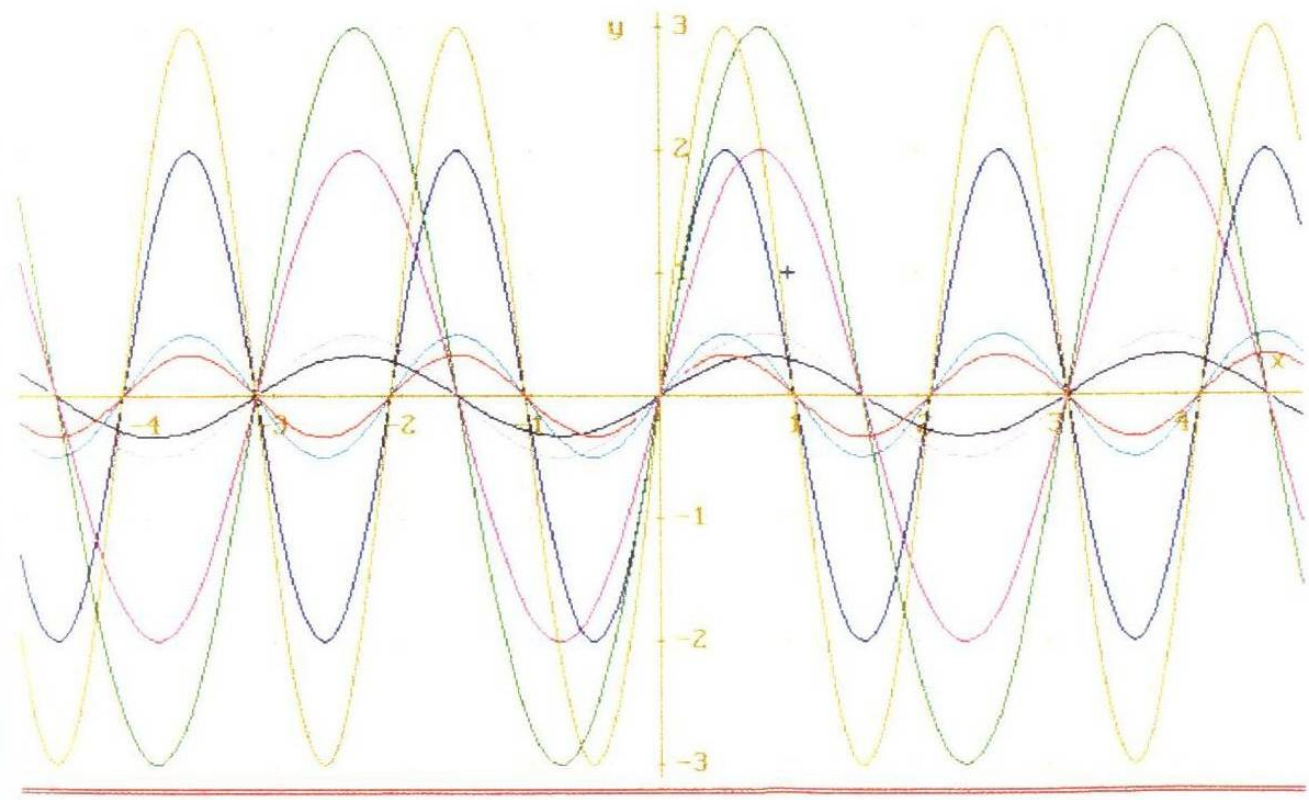
Gráfica de la forma sen(bt)



Grafica de la forma acos(bt)



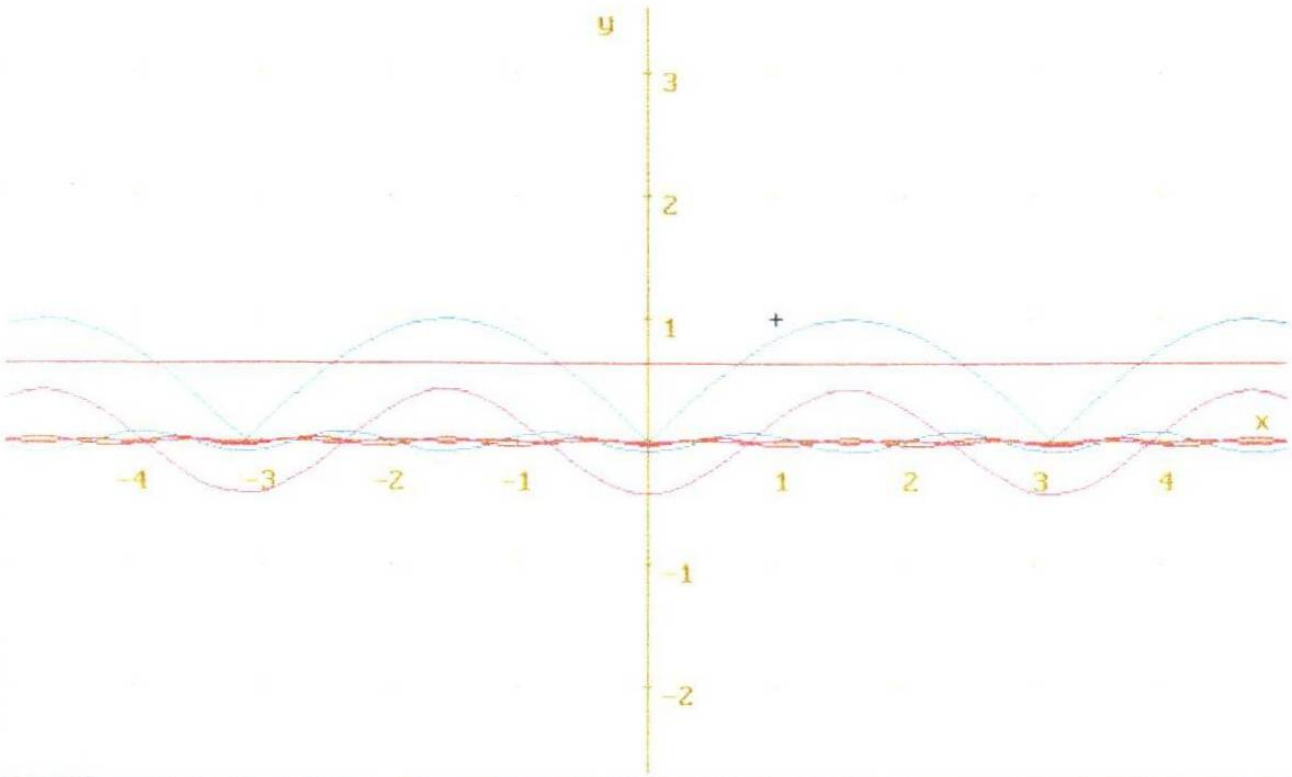
Gráfica de la forma asen(bt)

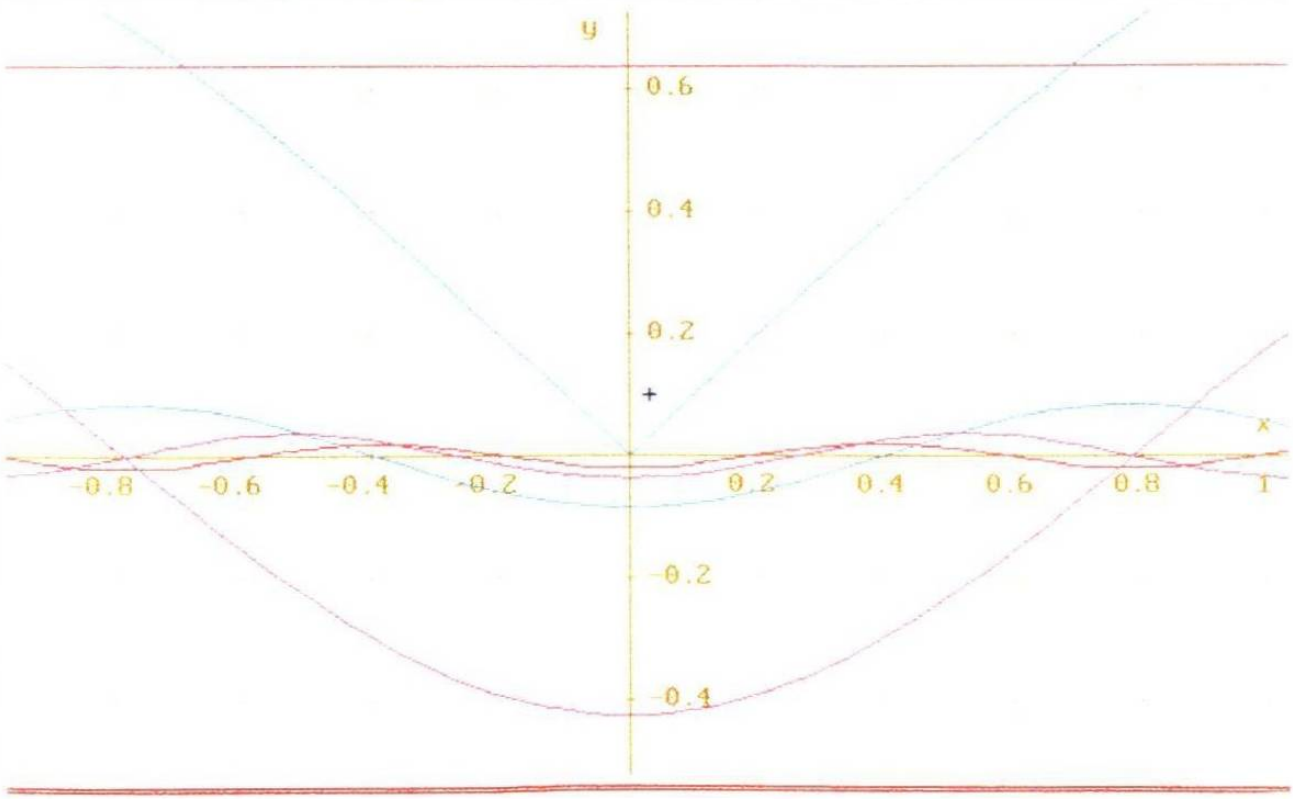


GRAFICA DE LOS TERMINOS DE LA SERIE

#1: $|\mathrm{SIN}(t)|$

#2: $\frac{2}{\pi} - \frac{4}{3\pi}\mathrm{COS}(2t) - \frac{4}{15\cdot\pi}\mathrm{COS}(4t) - \frac{4}{35\pi}\mathrm{COS}(6t) - \frac{4}{63\cdot\pi}\cdot\mathrm{COS}(8t)$

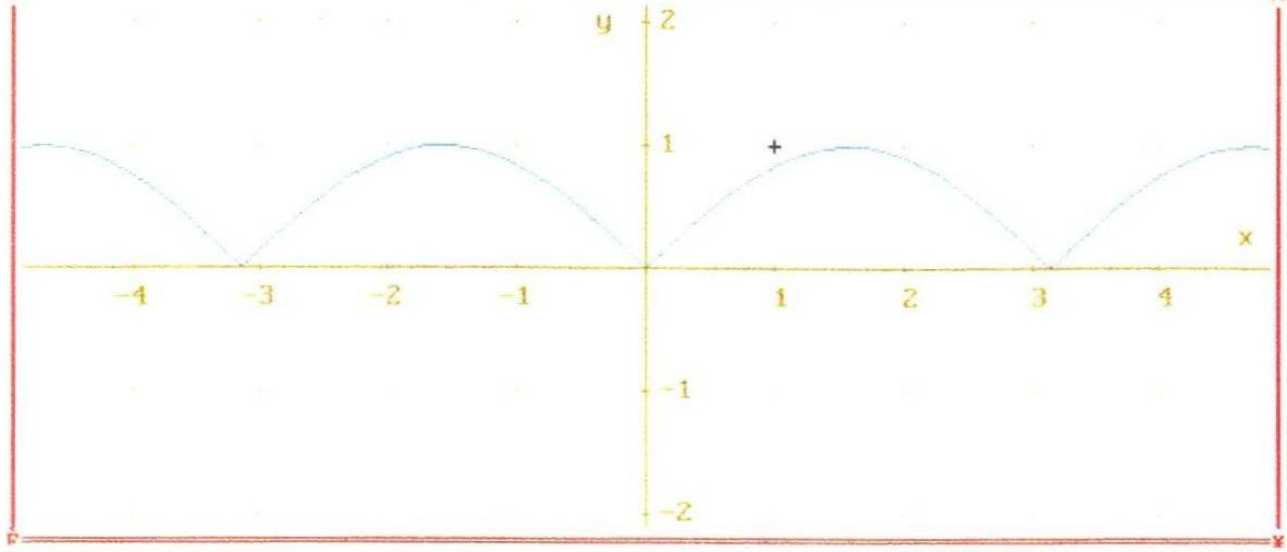




INTERPRETACIÓN GRÁFICA DE LA SERIE

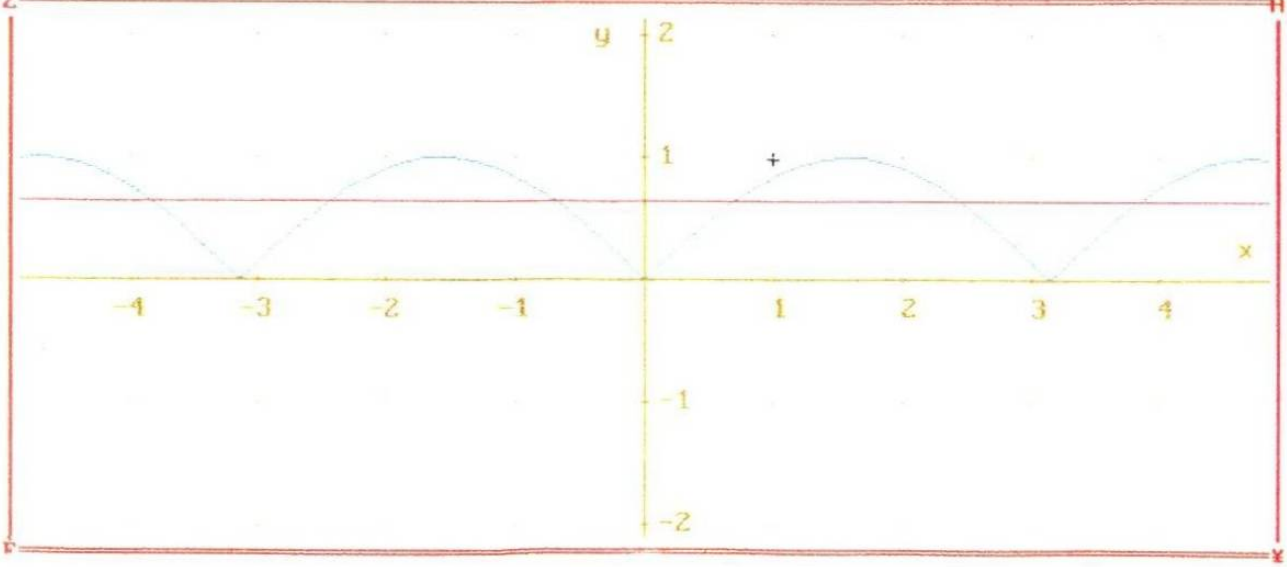
$$|SIN(t)|$$

$$\frac{2}{\pi} - \frac{4}{3\cdot\pi}\cdot COS(2\cdot t) - \frac{4}{15\cdot\pi}\cdot COS(4\cdot t) - \frac{4}{35\cdot\pi}\cdot COS(6\cdot t) - \frac{4}{63\cdot\pi}\cdot COS(8\cdot t$$



$$|SIN(t)|$$

$$\frac{2}{\pi}$$

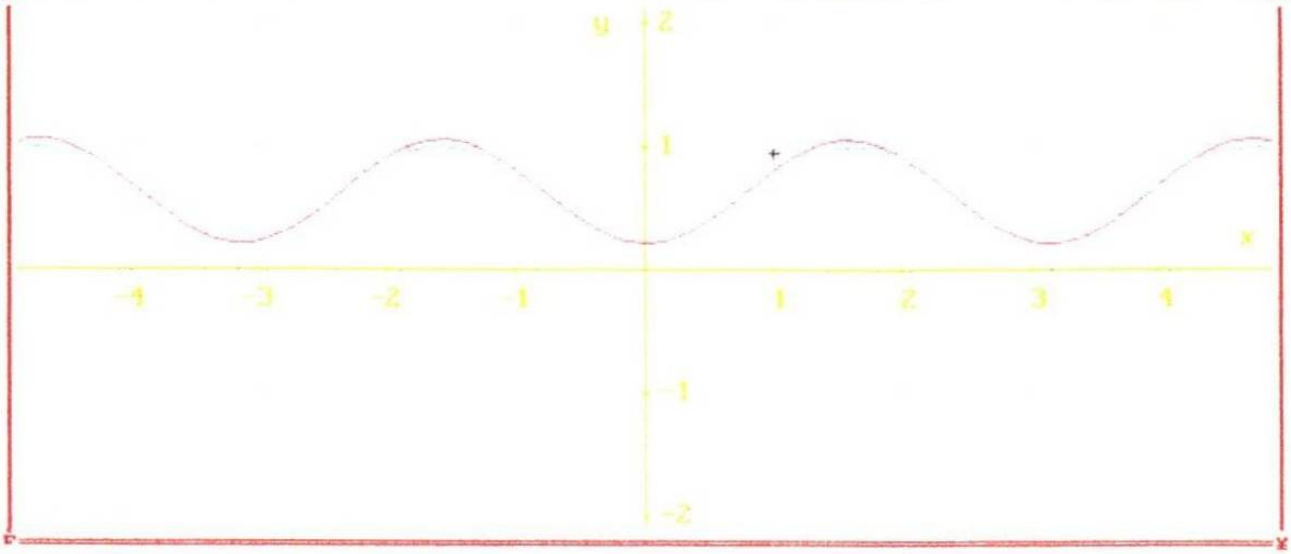


1

$$|SIN(t)|$$

$$\frac{2}{\pi} - \frac{4}{3 \cdot \pi} \cdot COS(2 \cdot t)$$

2

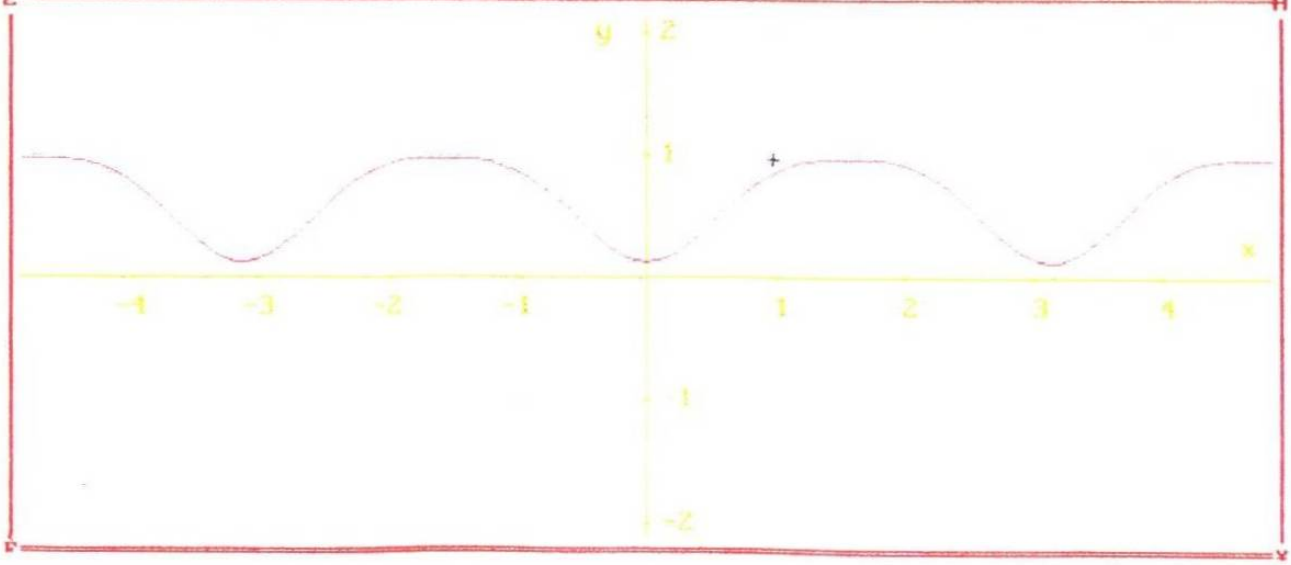


1

$$|SIN(t)|$$

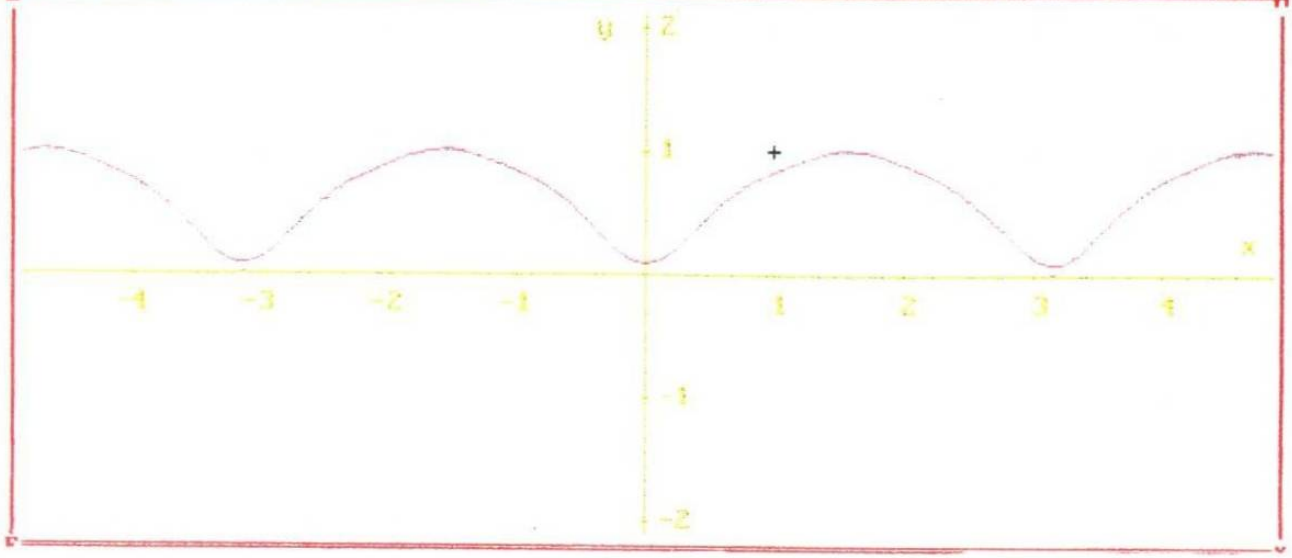
$$\frac{2}{\pi} - \frac{4}{3 \cdot \pi} \cdot COS(2 \cdot t) - \frac{4}{15 \cdot \pi} \cdot COS(4 \cdot t)$$

2



#1: $|\mathrm{SIN}(t)|$

#2: $\frac{2}{\pi} - \frac{4}{3\cdot\pi}\cdot\mathrm{COS}(2\cdot t) - \frac{4}{15\cdot\pi}\cdot\mathrm{COS}(4\cdot t) - \frac{4}{35\cdot\pi}\cdot\mathrm{COS}(6\cdot t)$



#1: $|\mathrm{SIN}(t)|$

#2: $\frac{2}{\pi} - \frac{4}{3\cdot\pi}\cdot\mathrm{COS}(2\cdot t) - \frac{4}{15\cdot\pi}\cdot\mathrm{COS}(4\cdot t) - \frac{4}{35\cdot\pi}\cdot\mathrm{COS}(6\cdot t) - \frac{4}{63\cdot\pi}\cdot\mathrm{COS}(8\cdot t$