

**SOLUCIÓN DE LAS AUTOEVALUACIONES:**

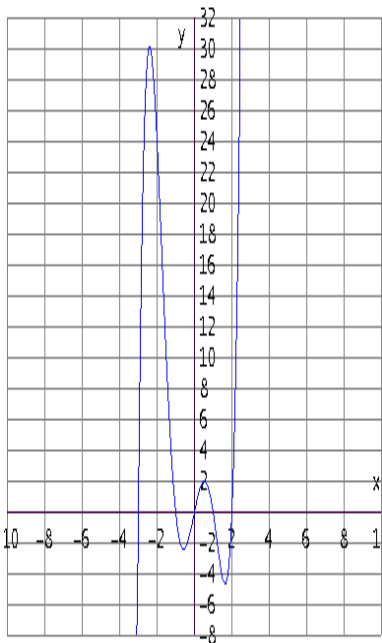
**Unidad 1:**

1) No son funciones A) y C). Ya que al despejar a  $y$ , a cada elemento de  $x$  le corresponden dos de  $y$ .

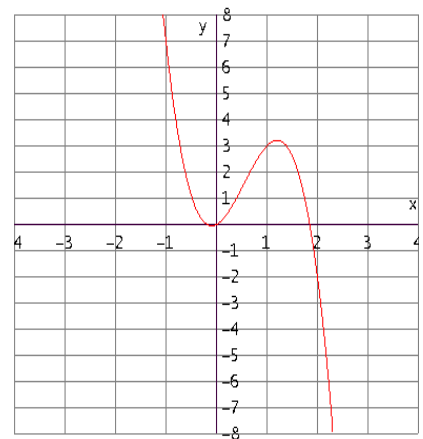
2)  $f(3) = -33$ ,  $f(-1) = 7$  y  $f(1/2) = 11/8$ .

3)  $x_1 = 0$ ,  $x_2 = -0.1804$  y  $x_3 = 1.8471$

5) Forma factorizada:  $y = x(x + 3)(x + 1)(x - 1)(x - 2)$   
 Forma desarrollada:  $y = x^5 + x^4 - 7x^3 - x^2 + 6x$



4)



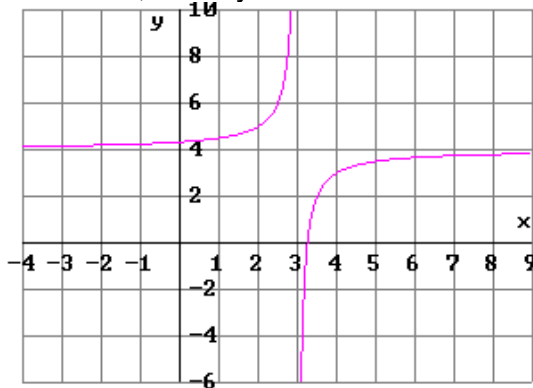
6)  $x_1 = 1.912$ ,  $x_2 = -0.713$ ,  $x_3 = 1$ ,  $x_4 = -2.198$

**Unidad 2:**

1)  $m(x)$

D:  $\mathbb{R} - \{3\}$ , R:  $\mathbb{R} - \{4\}$

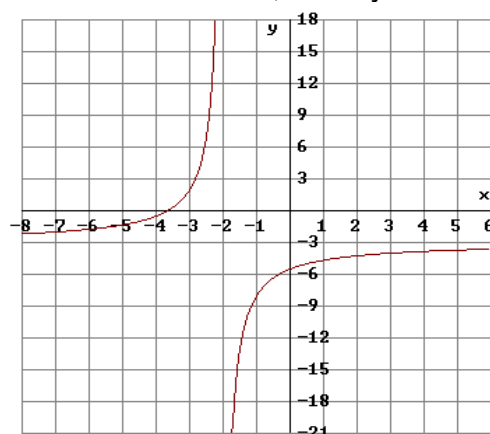
A.V:  $x = 3$ , A.H:  $y = 4$



2)  $k(x)$

D:  $\mathbb{R} - \{-2\}$ , R:  $\mathbb{R} - \{-3\}$

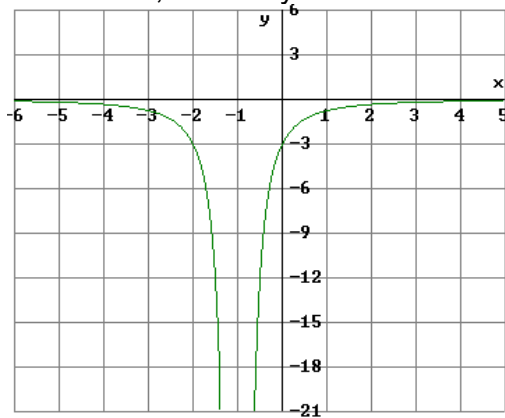
A.V:  $x = -2$ , A.H:  $y = -3$



3)  $f(x)$

D:  $\mathbb{R} - \{-1\}$ , R:  $(-\infty, 0)$

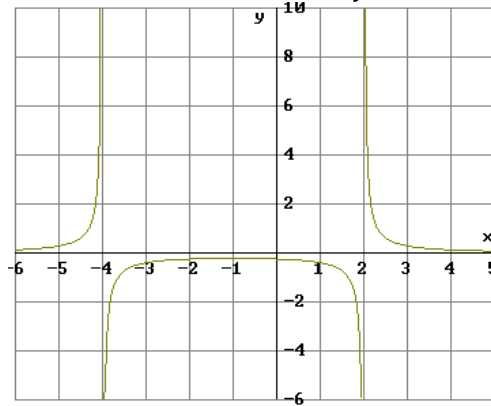
A.V:  $x = 0$ , A.H:  $y = 0$



4)  $h(x)$

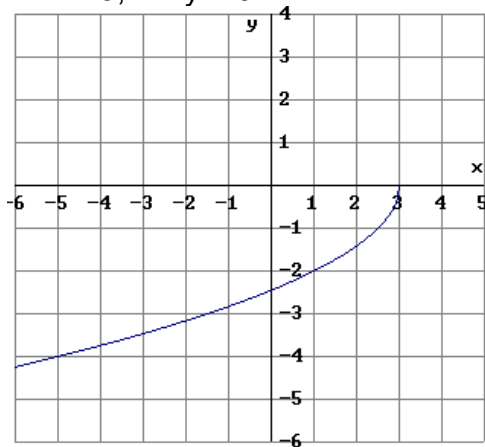
D:  $\mathbb{R} - \{-4, -2\}$ , R:  $\mathbb{R} - \{0\}$

A.V:  $x = -4, x = 2$ , A.H:  $y = 0$



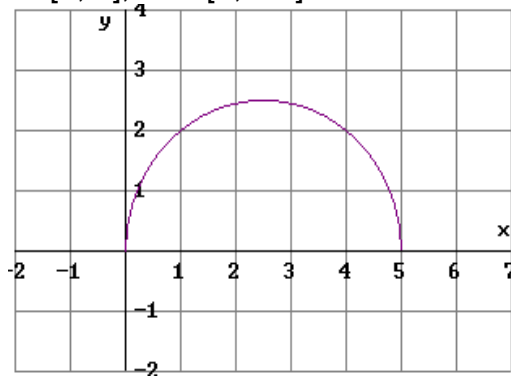
5)  $g(x)$

D:  $x \leq 3$ , R:  $y \leq 0$



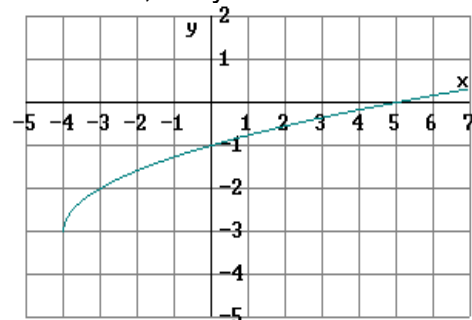
6)  $p(x)$

D:  $[0, 5]$ , R:  $[0, 5/2]$



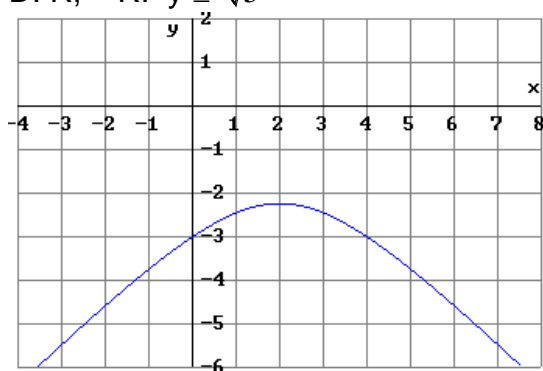
7)  $F(x)$

D:  $x \geq -4$ , R:  $y \geq -3$

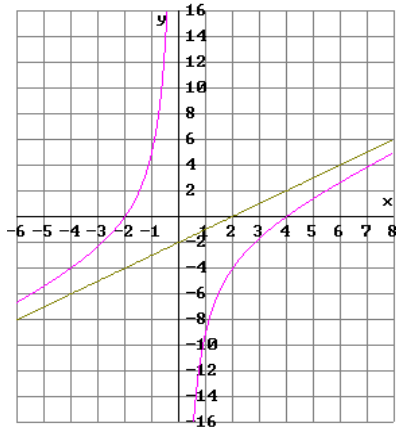


8)  $Q(x)$

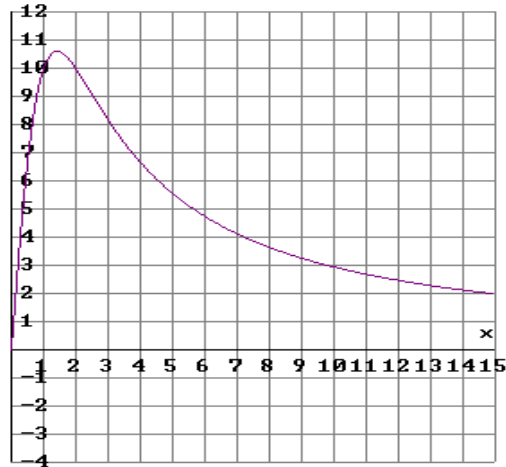
D:  $\mathbb{R}$ , R:  $y \leq \sqrt{5}$



9) Asíntota oblicua o inclinada  $y = x - 2$ ,  
 A.V:  $x = 0$ , los ceros son:  $x_1 = 4$  y  $x_2 = -2$ .



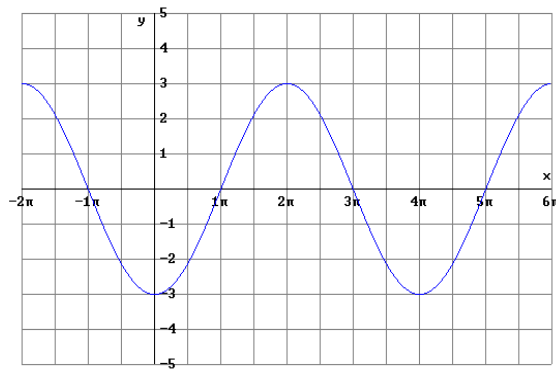
10) b) tiende a cero



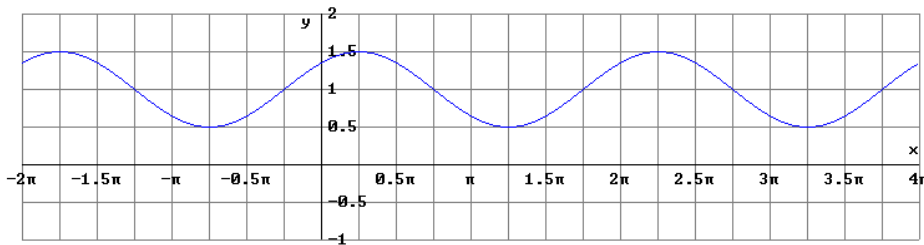
**Unidad 3:**

1)  $y = 5/13$

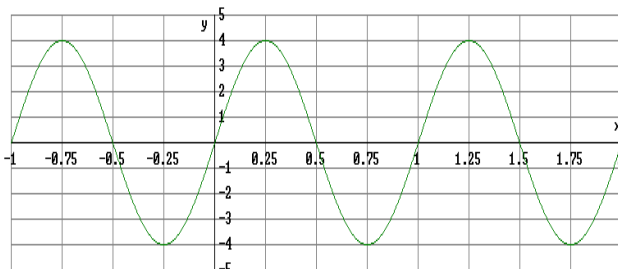
2)



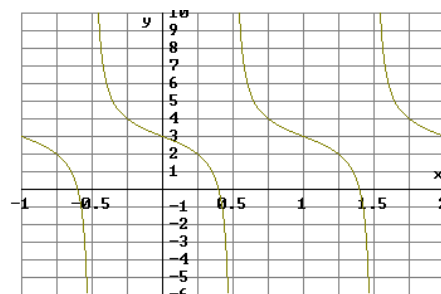
3)



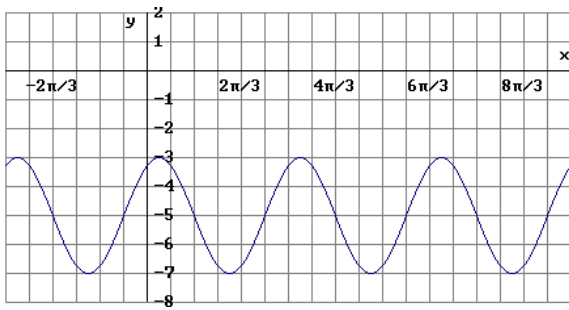
4)



5)



6)



7)



8)  $A = 3$ ,  $P = \pi$ , corrimiento de fase = 0 y no se desplaza verticalmente

$$f(x) = -3 \cos(2\pi x)$$

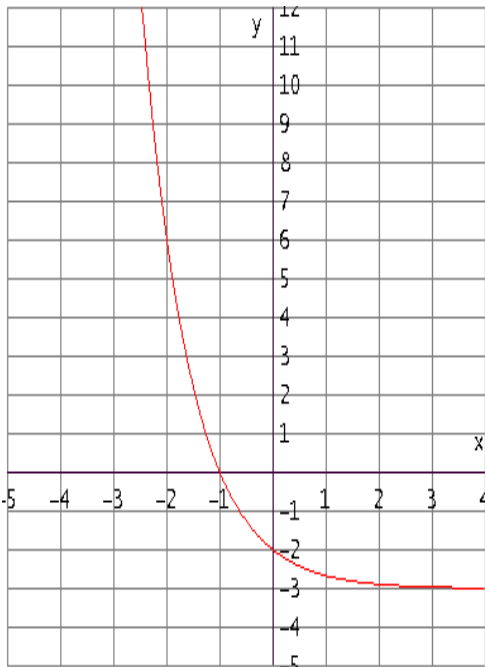
9)  $A = 2$ ,  $P = 6\pi$ , corrimiento de fase = 0 y se desplaza 1 unidad hacia abajo

$$f(x) = 2 \sin(x/3) - 1$$

10)  $B(t) = 3.8 + 0.2 \sin(\pi t/5)$

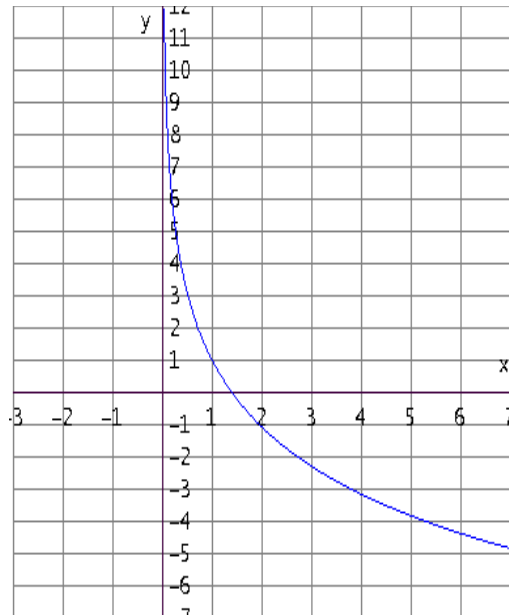
**Unidad 4:**

1)  $F(x) = (1/3)^x - 3$



Dom =  $(-\infty, +\infty)$ , Ran =  $(-3, +\infty)$ ,  
Asíntota:  $y = -3$ , Cero:  $x = -1$

2)  $M(x) = -3 \ln(x) + 1$



Dom =  $(0, +\infty)$ , Ran =  $(-\infty, +\infty)$ ,  
Asíntota:  $x = 0$ , Cero:  $x = 1.395$

3)  $N(x)$ , Dom =  $(-\infty, +\infty)$ , Rango =  $(-\infty, 2)$ , Asíntota:  $y = 2$ , Cero:  $x = \ln(2) = 0.69$

4)  $K(x)$ , Dom =  $(0, +\infty)$ , Rango =  $(-\infty, +\infty)$ , Asíntota:  $x = 0$ , Cero:  $x = 1/100$

5)  $x = 0.234$

6)  $x_1 = 4$  y  $x_2 = 2$

7) a)  $k = 0.021$ , b) 38 palabras c) 109.27 minutos