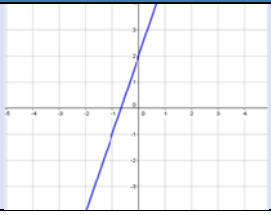
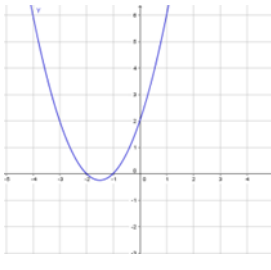
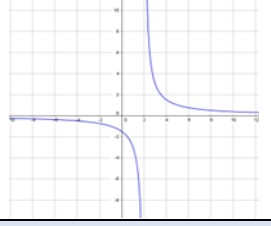
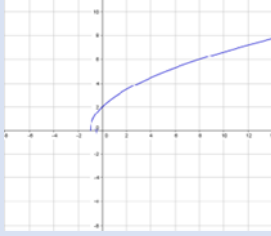

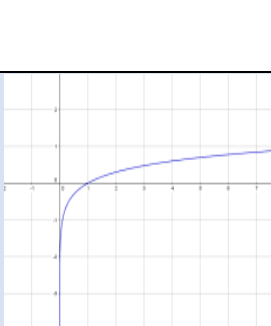


FUNCIONES ELEMENTALES

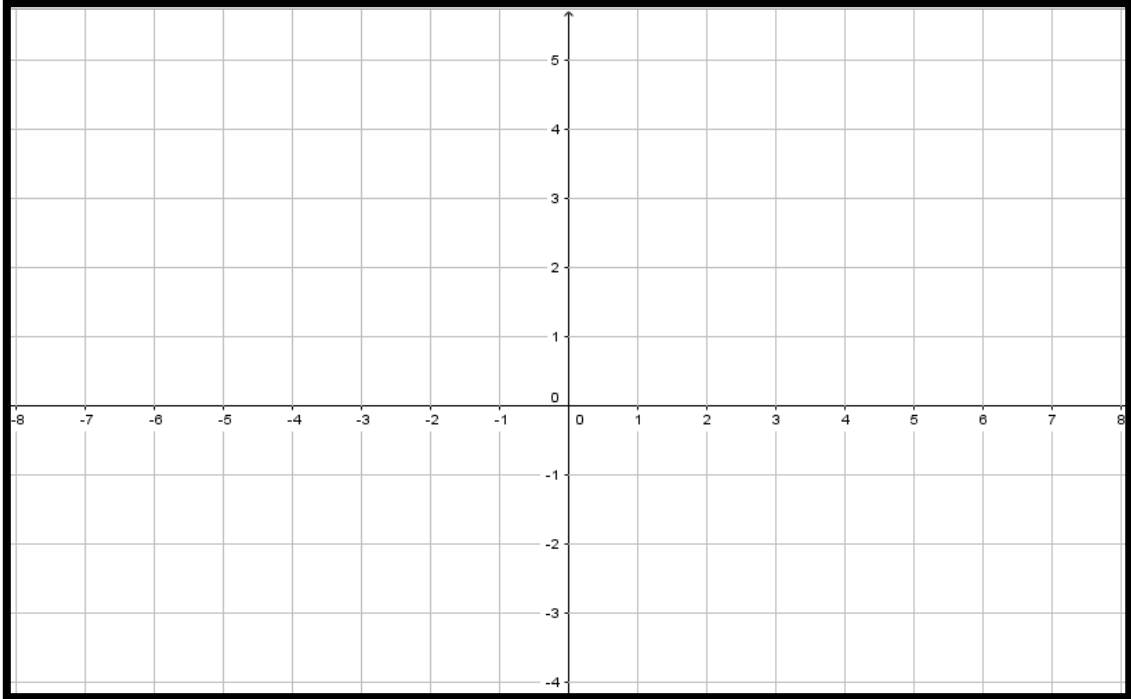
EXPRESIÓN	EJEMPLO	NOMBRE FUNCIÓN	NOMBRE GRÁFICA	REPRESENTACIÓN	CARACTERÍSTICAS
$y = mx + n$	$y = 3x + 2$	LINEAL $y = mx + n$ AFÍN ($n \neq 0$) $y = mx$	LÍNEA RECTA		m= pendiente $m \begin{cases} > 0 / \text{(creciente)} \\ = 0 - \text{(constante)} \\ < 0 / \text{(decreciente)} \end{cases}$ n=corte EJE Y
$y = ax^2 + bx + c$	$y = x^2 + 3x + 2$	CUADRÁTICA	PARÁBOLA		<u>Forma/Curvatura</u> $a \begin{cases} > 0 \cup \\ = 0 / \\ < 0 \cap \end{cases}$ <u>Vértice (max/min)</u> $p = \frac{-b}{2a}$ <u>Corte Ejes</u> • OX ($y=0$) • OY ($x=0$)
PUNTOS DE CORTE PARÁBOLA-RECTA		MÉTODO ANALÍTICO		$\begin{cases} y = mx + n \\ y = ax^2 + bx + c \end{cases}$ despejar "y" e igualar ambas expresiones	
		MÉTODO GRÁFICO		Representar ambas funciones en un mismo gráfico y hallar puntos de corte	
EXPRESIÓN	EJEMPLO	NOMBRE FUNCIÓN	NOMBRE GRÁFICA	REPRESENTACIÓN	CARACTERÍSTICAS
$y = \frac{k}{x-a}$	$y = \frac{3}{x-2}$	PROPORCIONALIDAD INVERSA	HIPÉRBOLA		<u>Asíntotas</u> • $x=a$ (A. Vertical) • $y=0$ (A. Horizontal)
$y = a\sqrt{x+b}$ $y = a\sqrt{-x+b}$	$y = 2\sqrt{x+1}$	RADICAL	RAMA PARABÓLICA		<u>Crecimiento</u> $x \begin{cases} x \rightarrow \text{creciente} \\ -x \leftarrow \text{decreciente} \end{cases}$ <u>Ubicación</u> $a \begin{cases} > 0 \text{ f en región positiva} \\ < 0 \text{ f en región negativa} \end{cases}$ <u>Origen</u> • Corte EJE X ($y=0$)
$y = a^x$ $a = \text{base} > 0$ $x = \text{exponente}$	$y = 3^x$ $a = \text{base} = 3$ $x = \text{exponente}$	EXPONENCIAL	CURVA EXPONENCIAL		<u>Continuidad</u> • f continua <u>Crecimiento</u> $a \begin{cases} > 1 \rightarrow \text{creciente} \\ < 1 \leftarrow \text{decreciente} \end{cases}$ <u>Corte con EJE Y</u> f pasa por el punto (0,1) <u>Asíntotas</u> $y=0$ (A. Horizontal)
$y = \log_a x$	$y = \log_{10} x$	LOGARÍTMICA	CURVA LOGARÍTMICA		<u>Continuidad</u> • f continua <u>Corte con EJE X</u> f pasa por el punto (1,0)

PROYECTOS (10% NOTA)

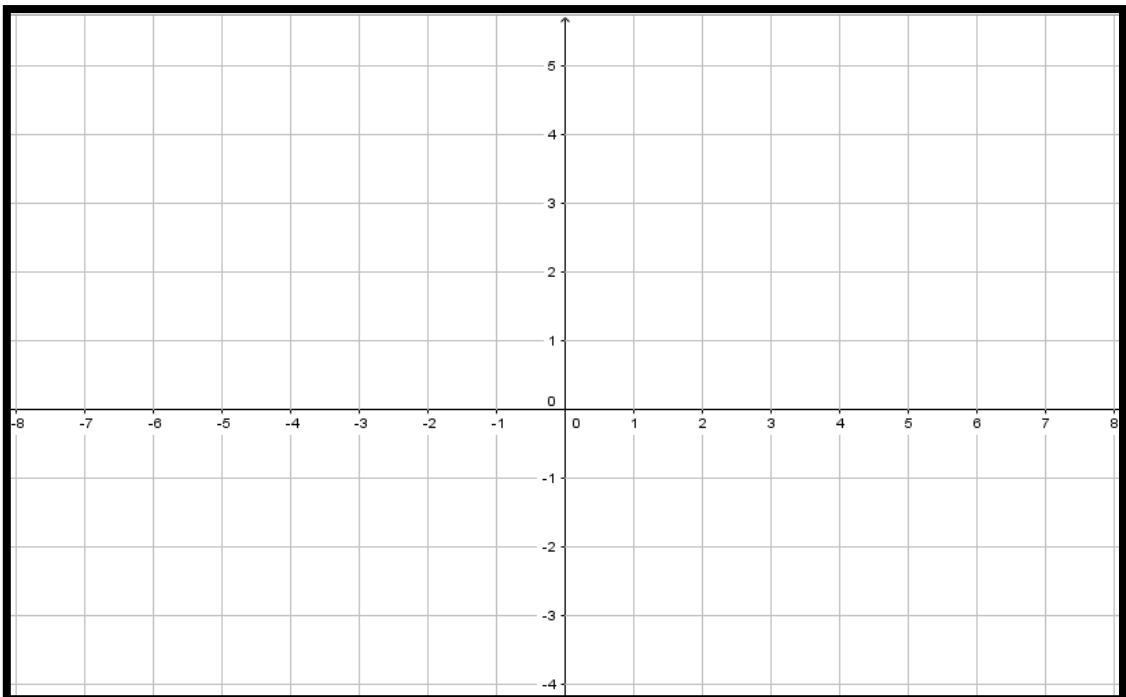
Nombre y Apellidos:

1. Representar funciones a trozos (lineales)

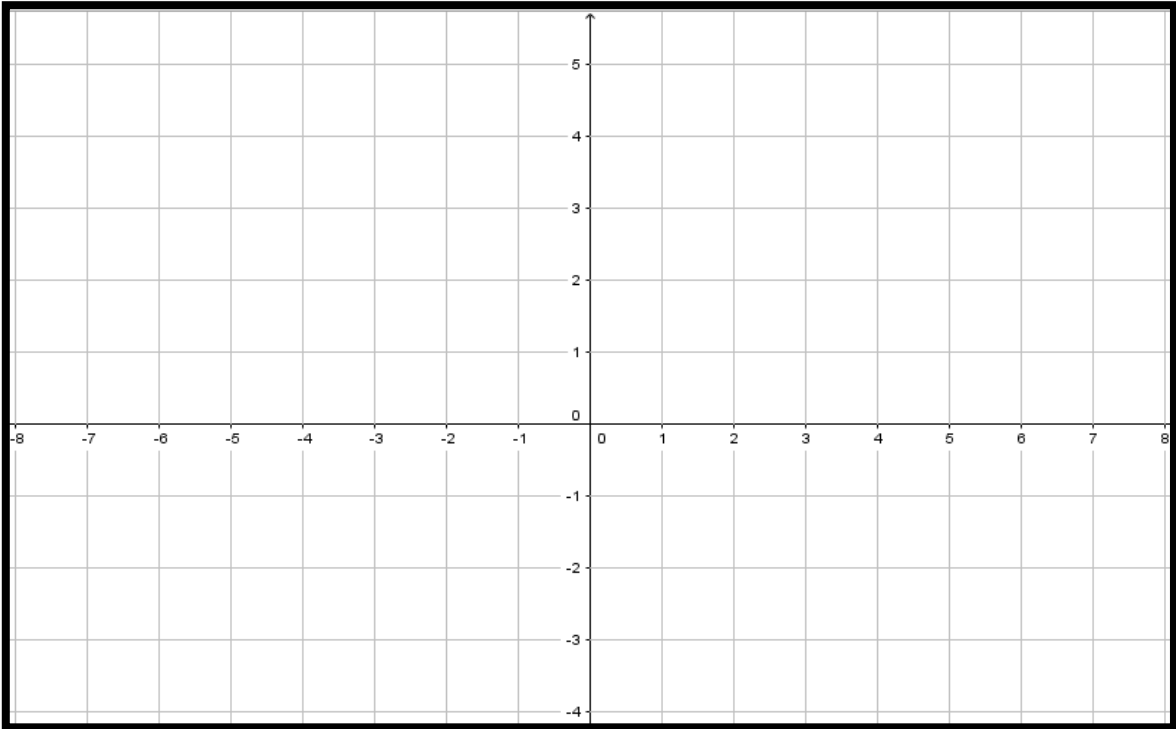
$$f(x) \begin{cases} 4 & \text{si } x < -5 \\ x + 3 & \text{si } -5 \leq x \leq 0 \\ -2x + 3 & \text{si } x > 0 \end{cases}$$



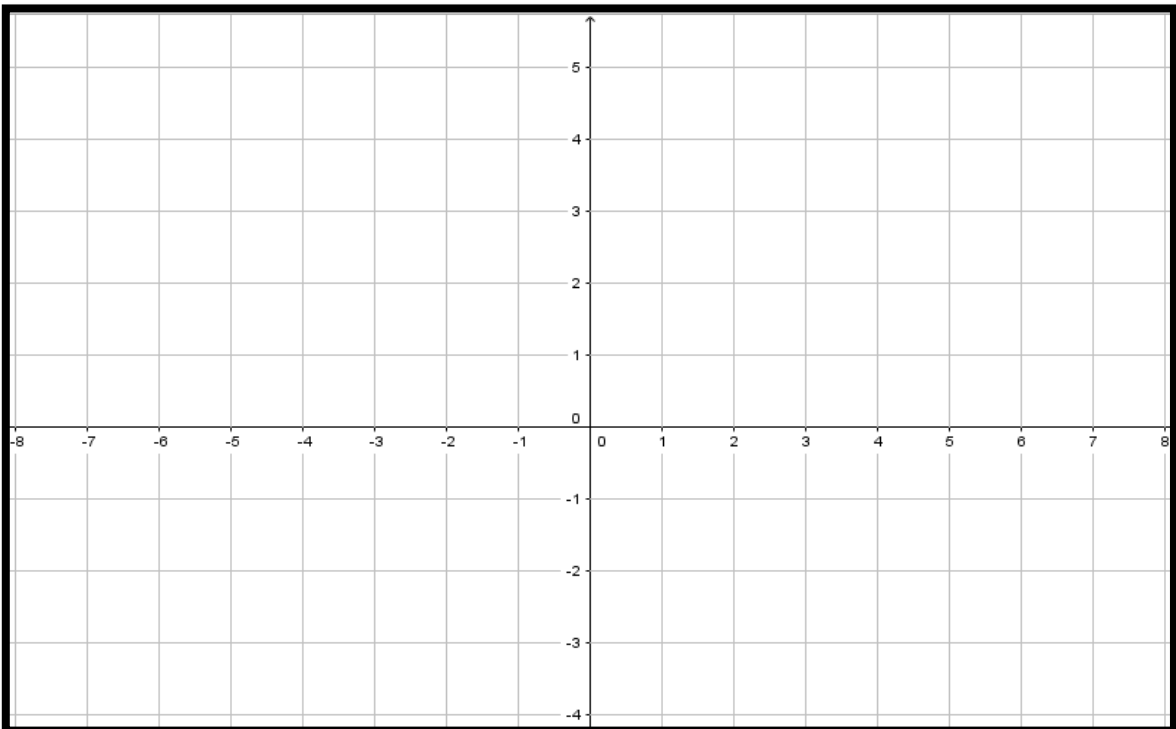
$$f(x) \begin{cases} 2x + 1 & \text{si } x < 1 \\ 3 & \text{si } 1 \leq x \leq 3 \\ 3 - x & \text{si } x > 3 \end{cases}$$



$$f(x) \begin{cases} 2x + 3 & \text{si } x < 2 \\ 4 & \text{si } 2 \leq x \leq 4 \\ x - 5 & \text{si } x > 4 \end{cases}$$

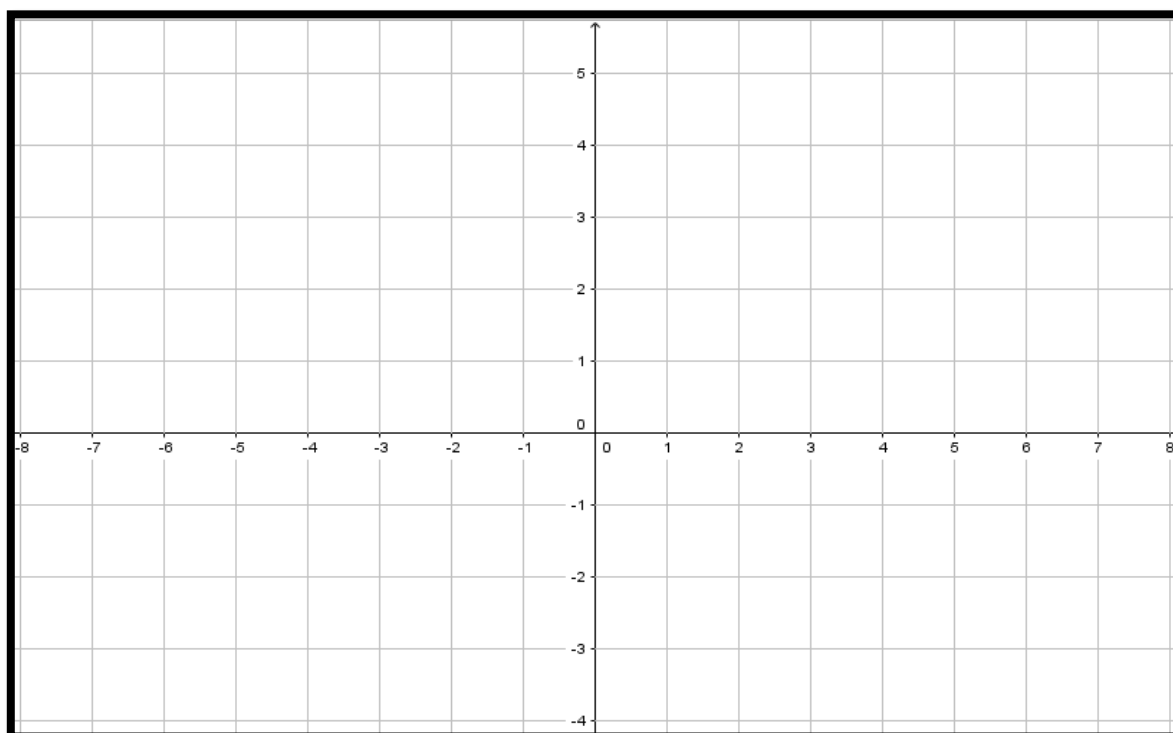


$$f(x) \begin{cases} 3x & \text{si } x \leq -1 \\ x & \text{si } -1 < x \leq 1 \\ -1 & \text{si } x > 1 \end{cases}$$

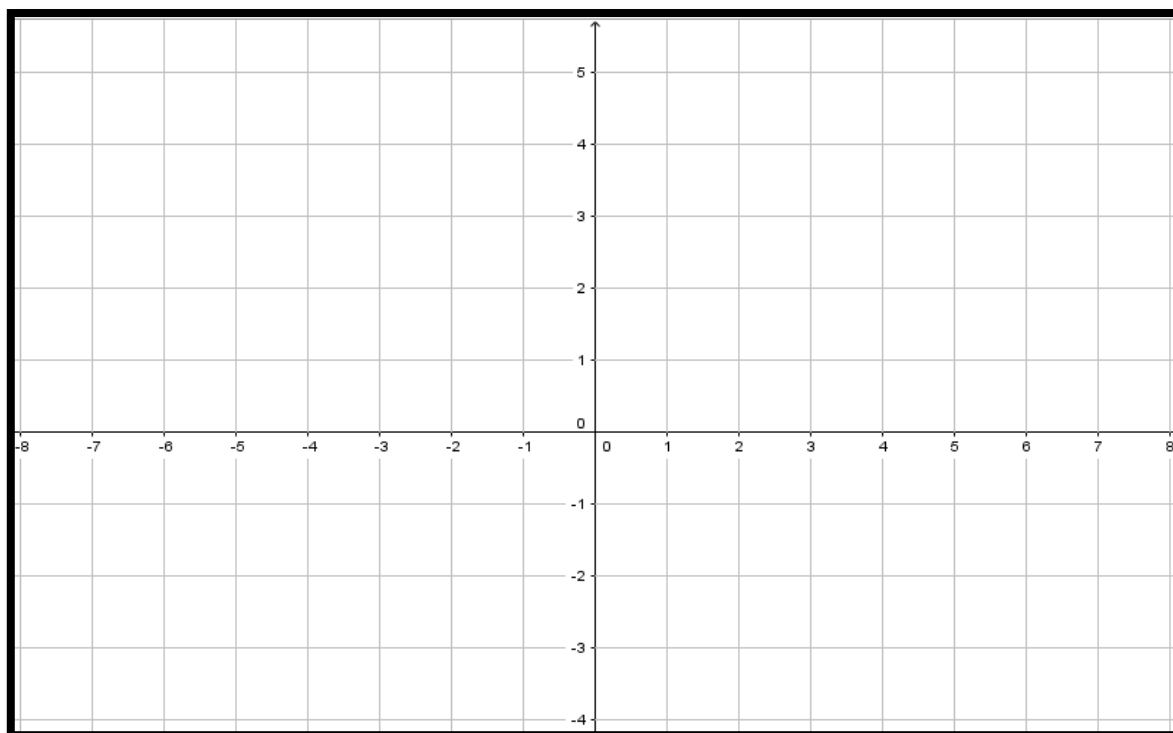


2. Representar funciones cuadráticas

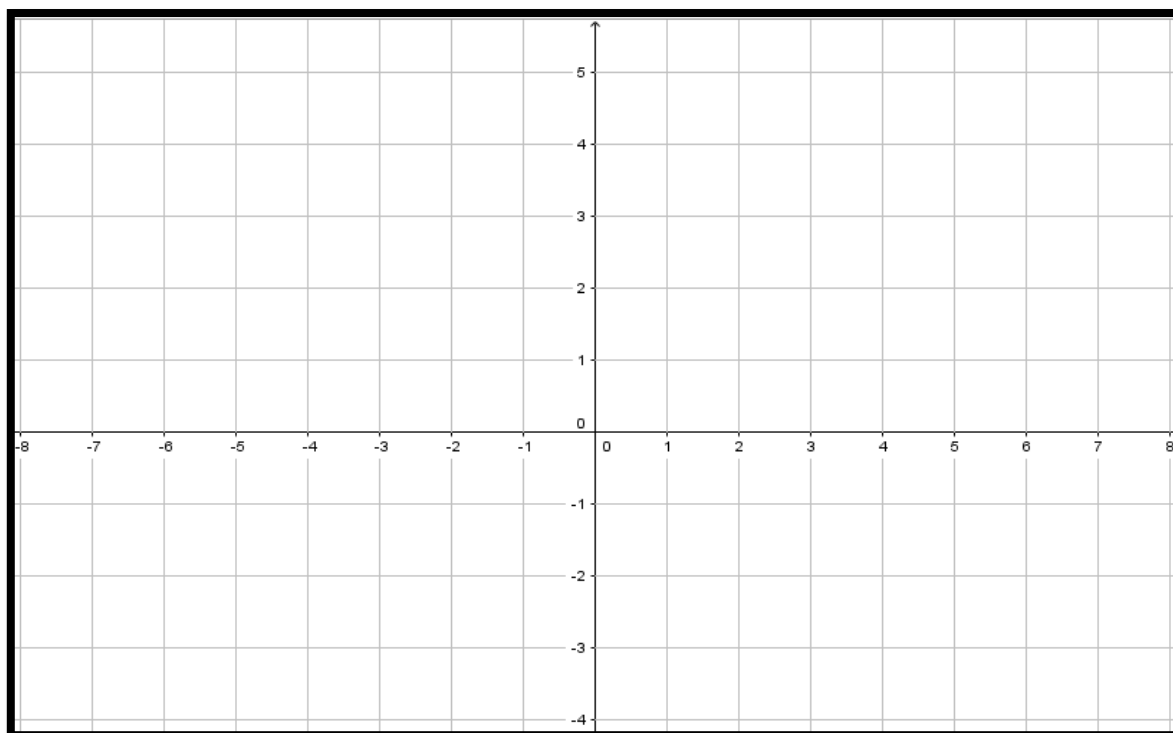
$$f(x) = x^2 - 5x + 6$$



$$f(x) = x^2 + 8x + 15$$



$$f(x) = 2x - x^2$$



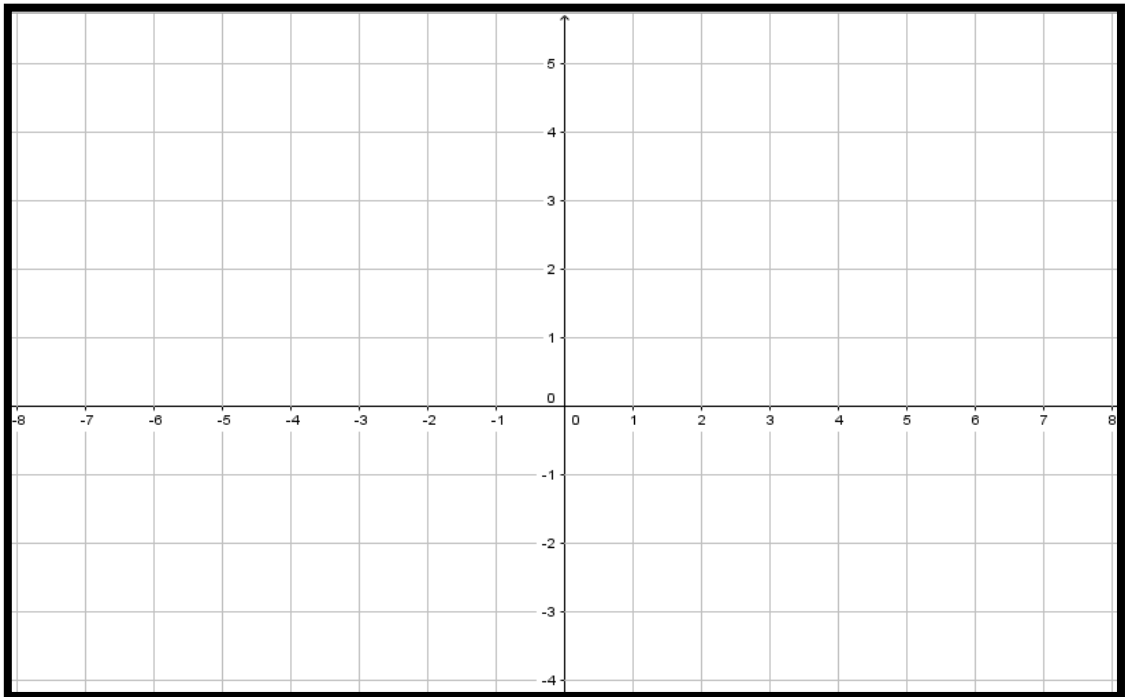
3. Hallar corte recta-parábola (método analítico)

$$\begin{cases} f(x) = x \\ g(x) = 2 - x^2 \end{cases}$$

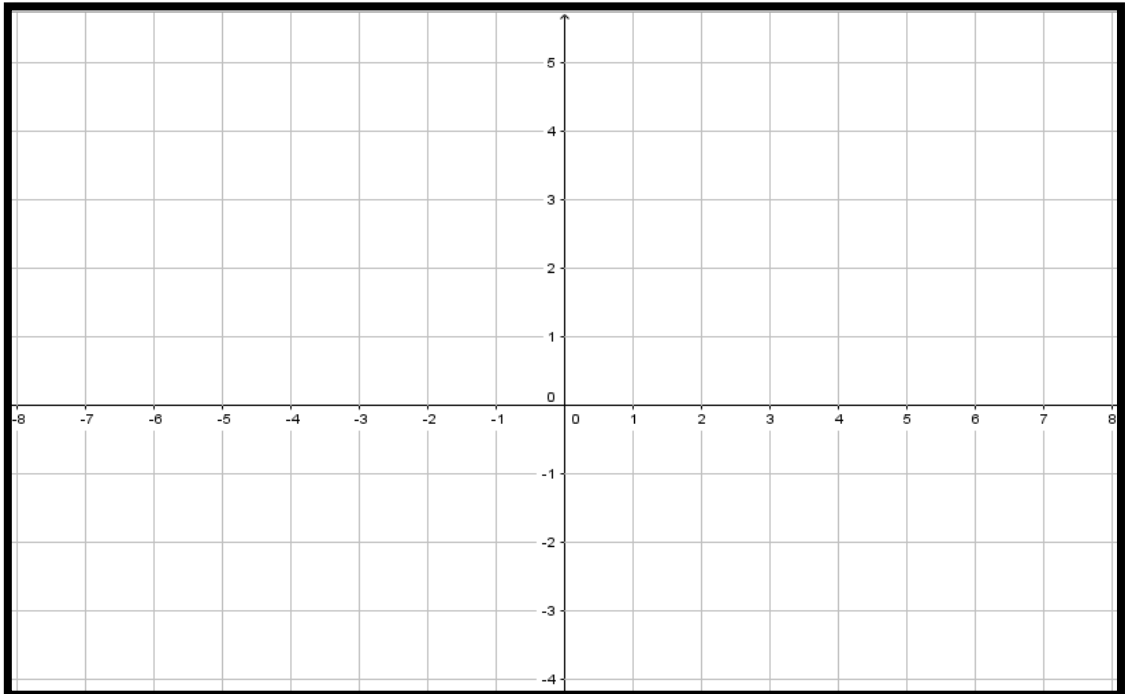
$$\begin{cases} f(x) = x + 3 \\ g(x) = x^2 - x - 5 \end{cases}$$

4. Representar funciones proporcionalidad inversa

$$f(x) = \frac{3}{x}$$

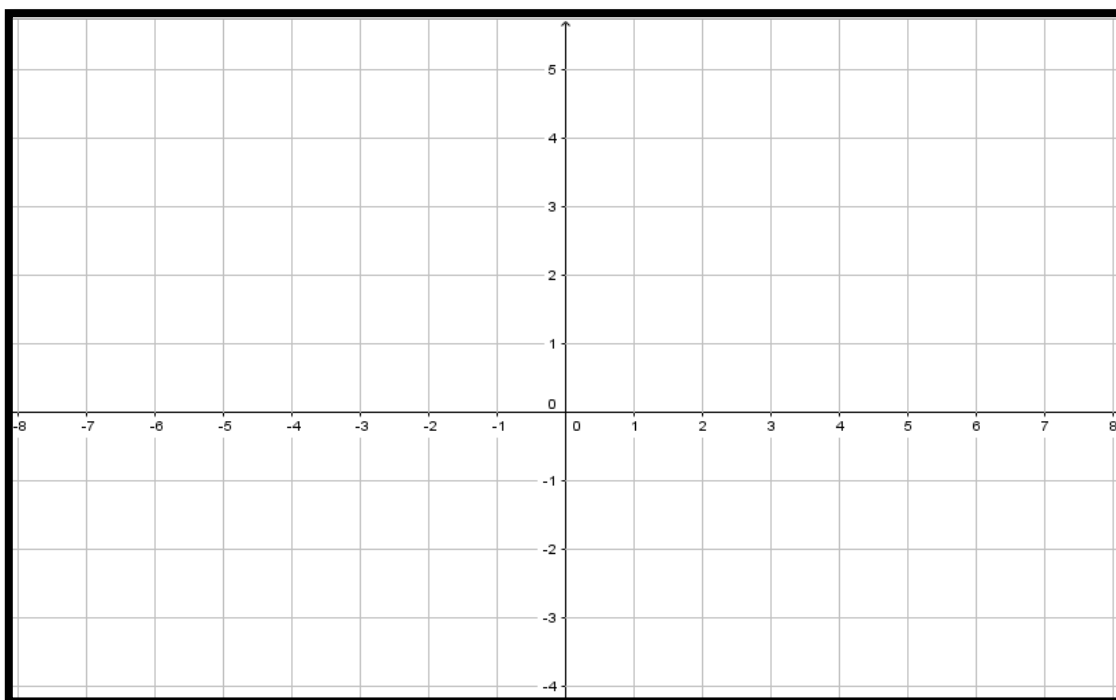


$$f(x) = \frac{1}{x+2}$$

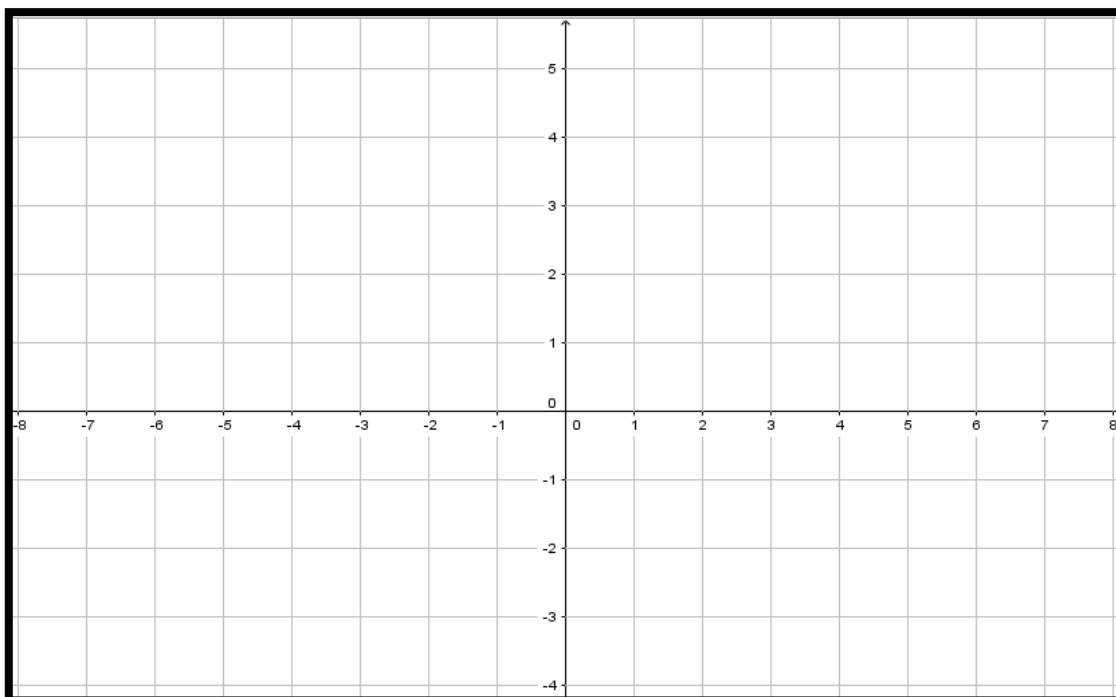


5. Representar funciones radicales

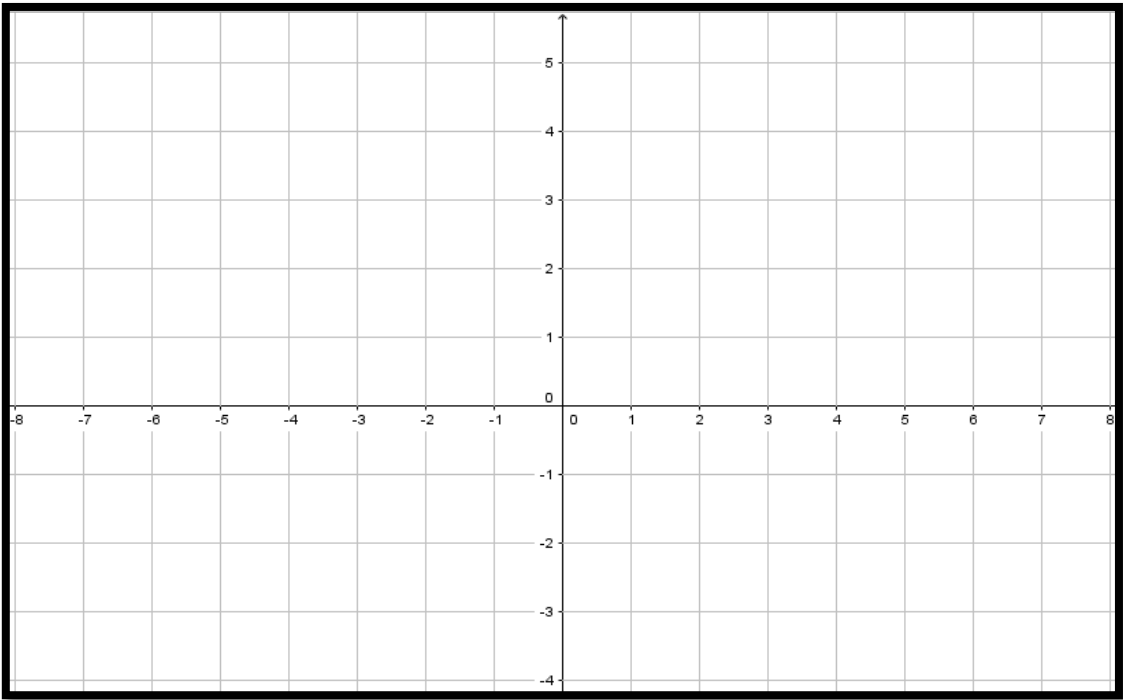
$$f(x) = 2\sqrt{x+5}$$



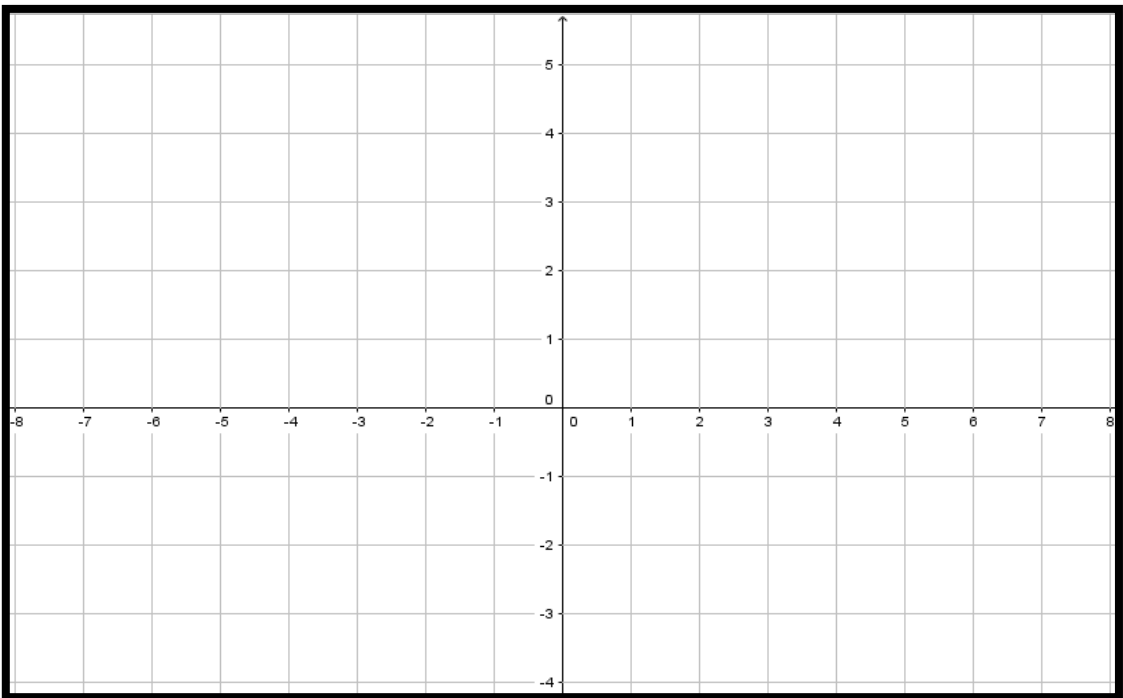
$$f(x) = 2\sqrt{-x+2}$$



$$f(x) = -\sqrt{x-2}$$

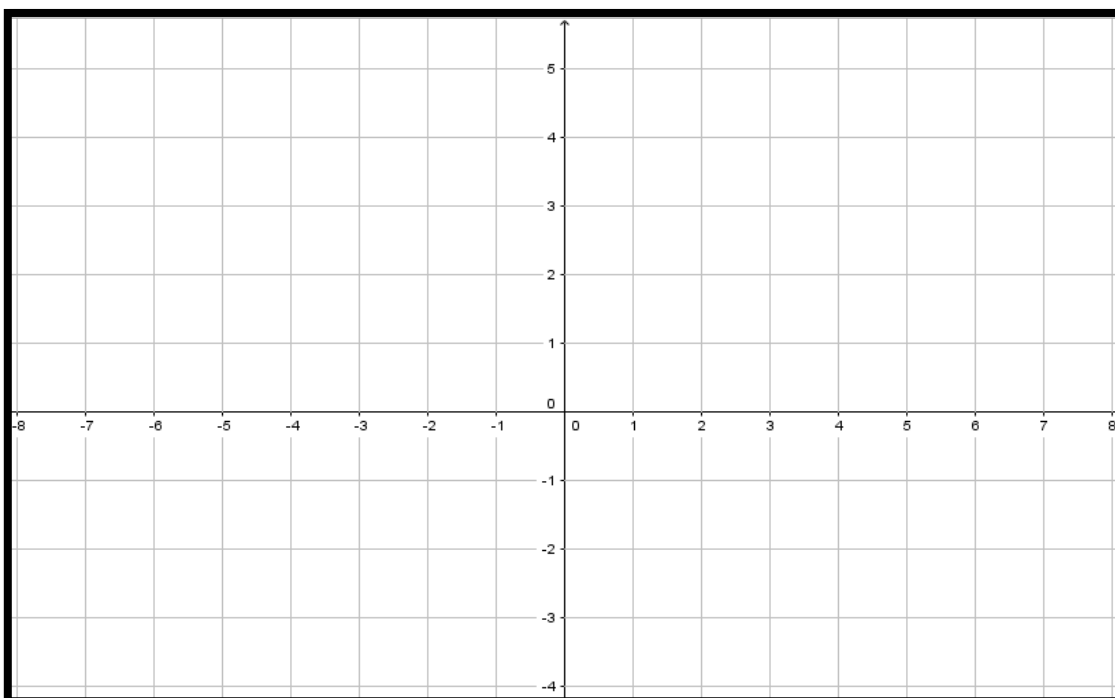


$$f(x) = -4\sqrt{-x+2}$$

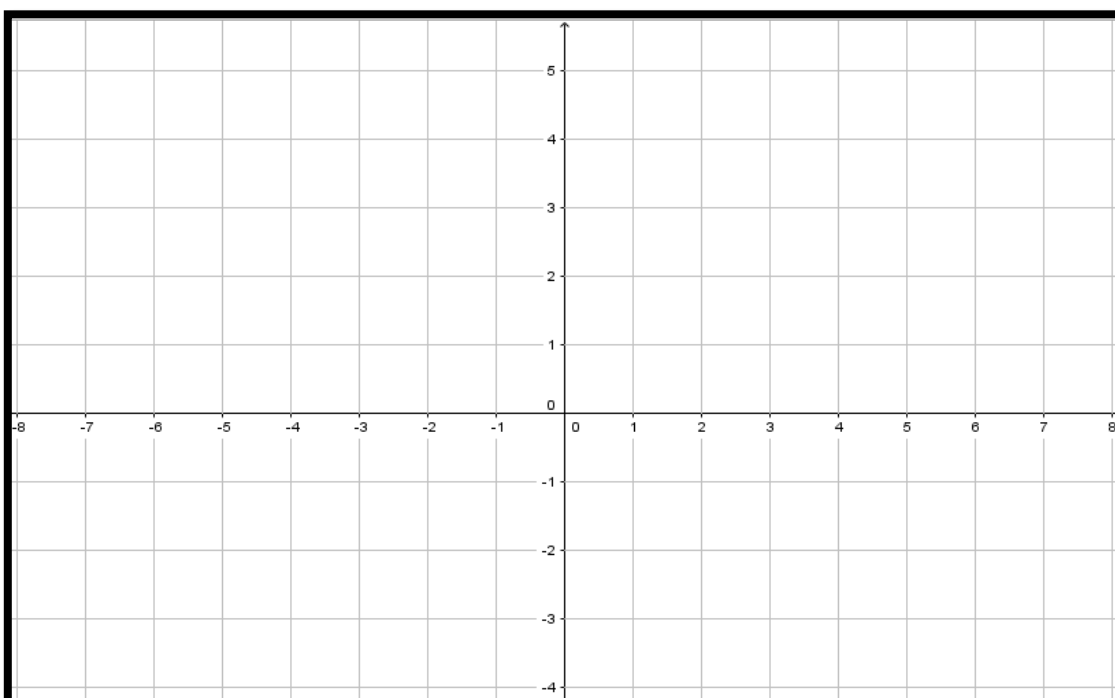


6. Representar funciones exponenciales

$$f(x) = 5^x$$

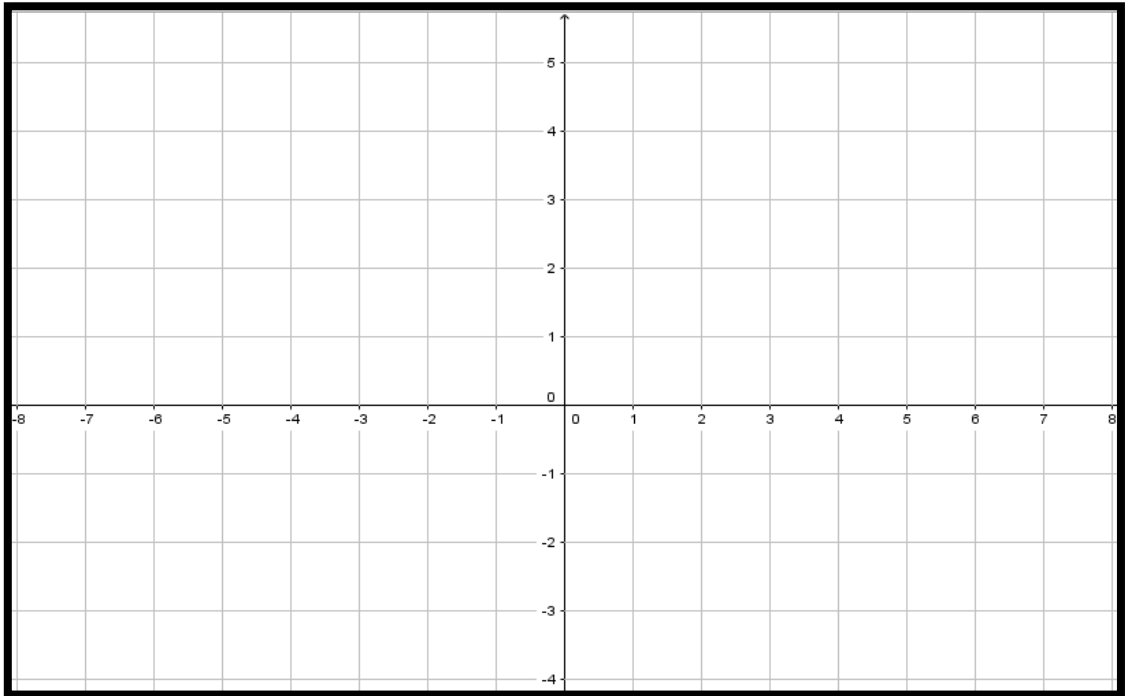


$$f(x) = \left(\frac{1}{5}\right)^x$$

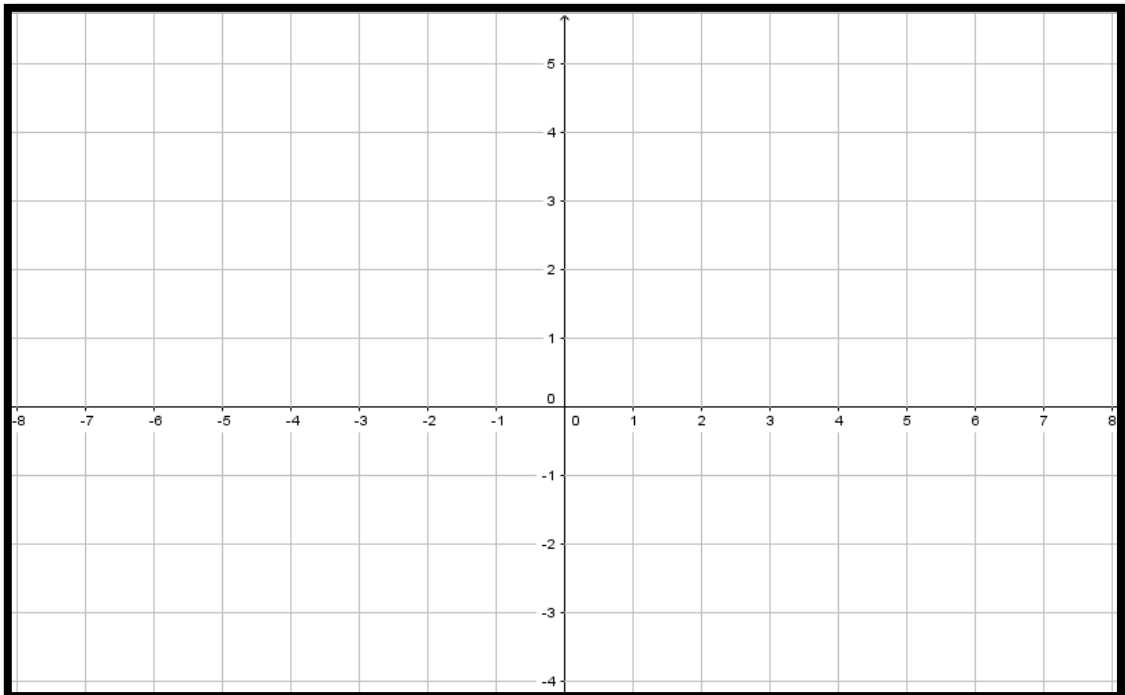


7. Representar funciones logarítmicas

$$f(x) = \log_{10}x$$

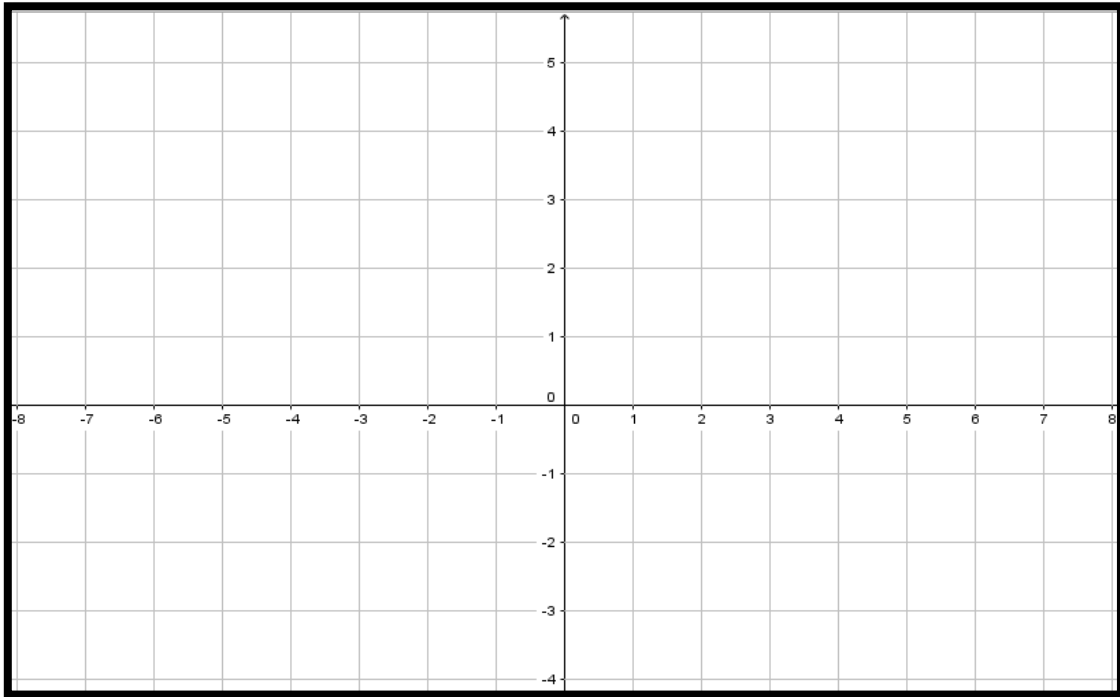


$$f(x) = \ln x$$

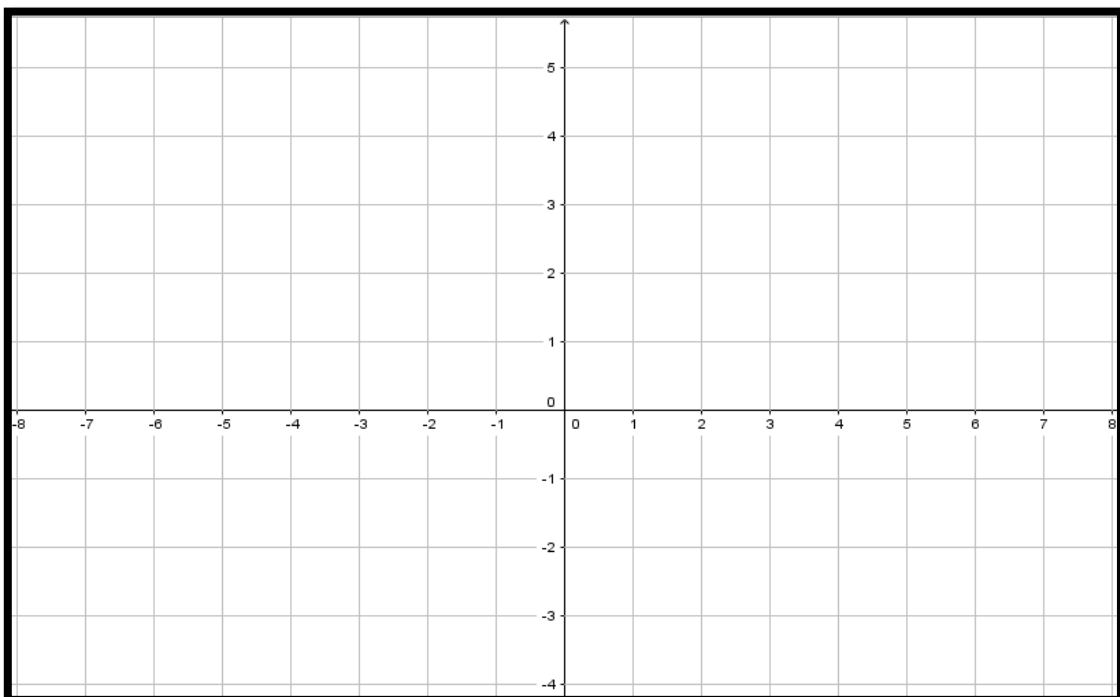


8. Representar funciones a trozos (Tipo Examen)

$$f(x) \begin{cases} x + 1 & \text{si } x < 0 \\ x^2 & \text{si } 0 \leq x \leq 2 \\ \frac{5}{x} & \text{si } x > 2 \end{cases}$$



$$g(x) \begin{cases} \frac{1}{x} & \text{si } x < 0 \\ x - 1 & \text{si } 0 \leq x \leq 2 \\ x^2 - 5 & \text{si } x > 2 \end{cases}$$



$$(x) \begin{cases} 1 - x^2 & \text{si } x < -1 \\ x + 3 & \text{si } -1 \leq x \leq 2 \\ \frac{3}{x - 4} & \text{si } x > 2 \end{cases}$$

