**Taller de funciones racionales**

**Reemplace cada valor de x en la función y complete cada una de las tablas dadas a continuación.**

**f(x)=(x+1)/(2x2-x-1)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -1 | -1/2 | 0 | 1/2 | 1 | 3 |
| F(x) |  |  |  |  |  |  |  |

**f(x)=(x3+x2)/(2x2+x)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -1 | -1/2 | 0 | 1/2 | 1 | 3 |
| F(x) |  |  |  |  |  |  |  |

**f(x)=(x2-2x+2)/(x-1)**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| F(x) |  |  |  |  |  |  |  |

**f(x)= x/(x-2)2**

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| F(x) |  |  |  |  |  |  |  |

f(x)=(2x+9)/(x²)

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| F(x) |  |  |  |  |  |  |  |

 y = -1 / ( x – 3 )

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| F(x) |  |  |  |  |  |  |  |

F(x)= (x² - 3x – 2)/ (x² - 4 )

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -3 | -2 | -1 | 0 | 1 | 2 | 3 |
| F(x) |  |  |  |  |  |  |  |

F(x) = ( x³ - 2x ) / 2 ( x² - 16 )

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| x | -4 | -2 | -1 | 0 | 1 | 2 | 4 |
| F(x) |  |  |  |  |  |  |  |

**1:f(x)=(x+1)/(2x2-x-1)**

* **Dominio**: No está definida en x=-1/2 yen x=1
* **Cortes**: (0,-1), (-1,0)
* **Regiones**:

f(x)<0: (-,-1)U(-1/2,1)

f(x)>0: (-1,-1/2)U(1,+)

* **Asíntotas**:

Horizontal: y=0

Verticales: x=-1/2, x=1

* **Puntos singulares**:

Máximo: (0,-1)

Mínimo: (-2,-1/9)



**2: f(x)=(x3+x2)/(2x2+x)**

* **Dominio**: No está definida en x=-1/2 y en x=0
* Simplificando la expresión obtenemos: f(x)=(x2+x)/(2x+1)
* **Cortes con los ejes:** (-1,0).
* **Regiones:**

f(x)<0: (-,-1)U(-1/2,0)

f(x)>0: (-1,-1/2)U(0,+)

* **Asíntotas**:

Vertical: **x=-1/2**

Oblicua: **y=0.5x+0.25** La curva no la corta. Se aproxima por debajo cuando x +; se aproxima por arriba cuando x-

* **Puntos singulares:**No tiene.
* **Puntos de inflexión:**No tiene

f''(x)=-2/(2x+1)3. Cóncava: x > -1/2; convexa: x < -1/2



**3: f(x)=(x2-2x+2)/(x-1)**

* **Dominio:**No está definida en x=1
* **Cortes con los ejes coordenados:**(0,-2)
* **Regiones:**

f(x)<0:(-, 1); f(x)>0: (1,+)

* **Asíntotas:**

Vertical:**x=1**

Oblicua:**y=x-1**. La curva no la corta. Se aproxima por arriba para x+; se aproxima por debajo para x-.

* **Puntos singulares:**

Mínimo (2,2)

Máximo (0,-2)

* **Puntos de inflexión**: No tiene. f''(x)=2/(x-1)3. Cóncava: (-,1); convexa: (1,+)



**4: f(x)= x/(x-2)2**

* **Dominio:**No está definida en x=2
* **Cortes con los ejes coordenados:**(0,0)
* **Regiones:** f(x)<0: (-,0); f(x)>0: (0,+)
* **Asíntotas:**

-Horizontal: y=0. La curva no la corta.

-Vertical: x=2

* **Puntos singulares:**Mínimo (-2,-1/8)
* **Puntos de Inflexión**: No tiene. f''(x)=4/(x-2)2 > 0 para todo x: Convexa