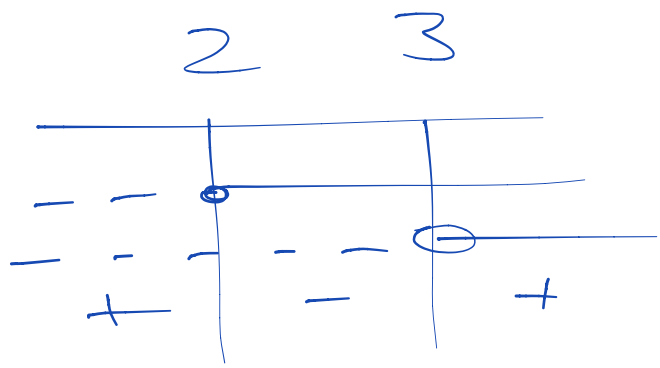
$$f(x) = \frac{x-2}{x-3}$$

C.E. $x-3 \neq 0 \Rightarrow x \neq 3$

$$D = \mathbb{R} - \{3\}$$

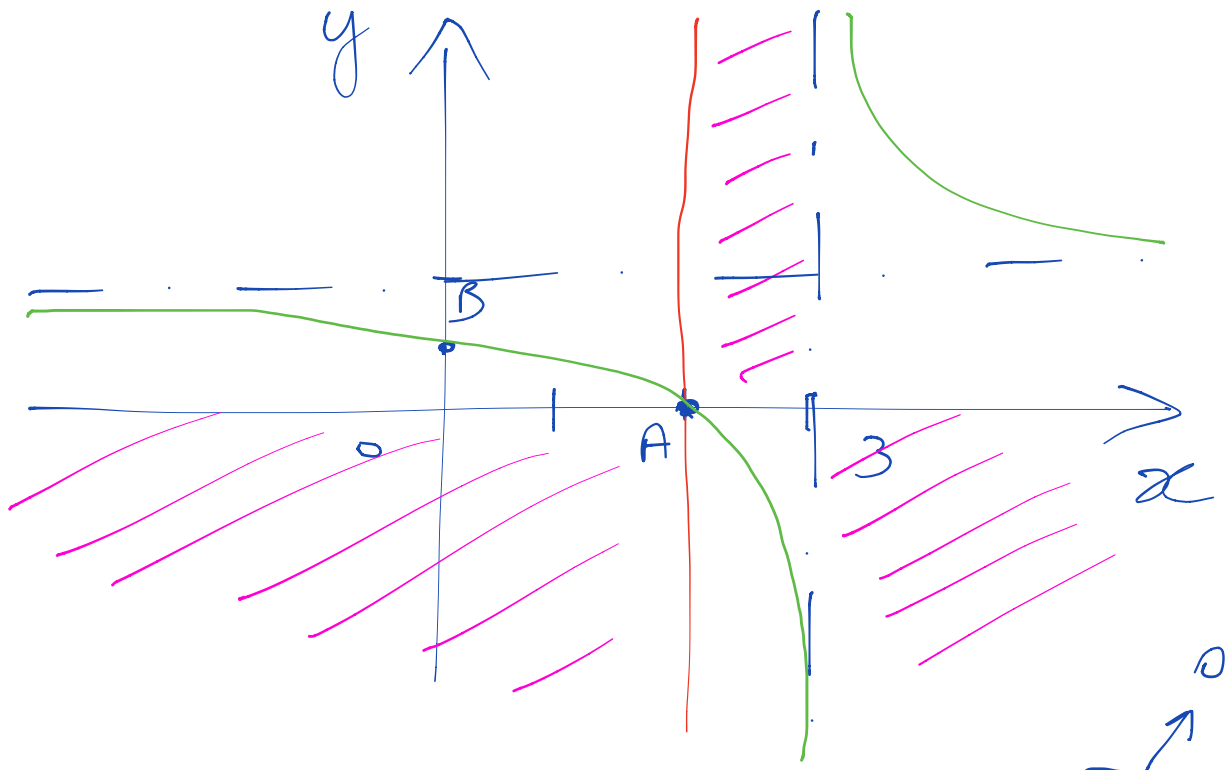
$$f(-x) = \frac{-x-2}{-x-3} \neq \pm f(x)$$

$$\frac{x-2}{x-3} \geq 0 \qquad \begin{array}{ll} N \geq 0 & x \geq 2 \\ D > 0 & x > 3 \end{array}$$



$A(2;0)$

$B(0;2/3)$



$$y = \frac{x-2}{x-3} = \frac{\frac{x-2}{x}}{\frac{x-3}{x}} = \frac{1-\frac{2}{x}}{1-\frac{3}{x}}$$

$\frac{2}{x} \to 0$, $\frac{3}{x} \to 0$

$$y = \frac{ax+b}{cx+d}$$

$x = -\frac{d}{c}$ A.V.

$y = \frac{a}{c}$ A.OR.

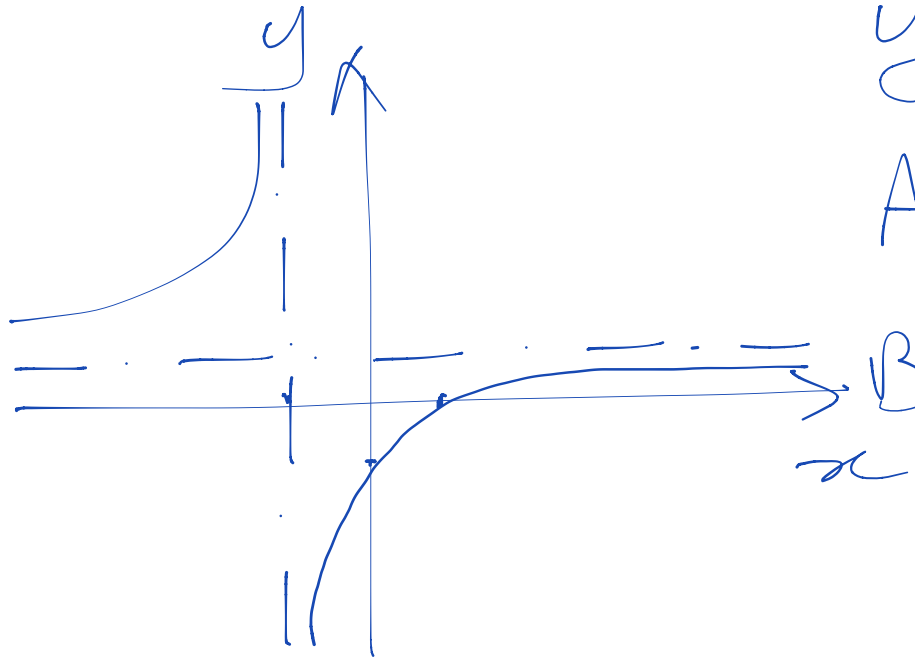
$$y = \frac{2x-1}{4x+3}$$

$$x = -\frac{3}{4}$$

$$y = \frac{1}{2}$$

$$A\left(\frac{1}{2}; 0\right)$$

$$B\left(0; -\frac{1}{3}\right)$$



n.181

$$\frac{x^2}{a^2} - \frac{y^2}{b^2} = -1$$

$V_R(0, 4)$

$\downarrow$

$b^2 = 16$

$P(6; 5)$

$$b^2x^2 - a^2y^2 = -a^2b^2$$

$$16 \cdot 36 - 25a^2 = -16a^2$$

$$\cancel{9}a^2 = 16 \cdot \cancel{36}^{4}$$

$$a^2 = 64$$

$$\frac{x^2}{64} - \frac{y^2}{16} = -1$$

$$\frac{xx_P}{64} - \frac{yy_P}{16} = -1$$

$$\frac{6x}{64} - \frac{5y}{16} = -1$$

n.305 $\quad xy = k \quad A(-2;-8)$

$$xy = 16$$

$$\begin{cases} xy = 16 \\ y = x \end{cases} \qquad x^2 = 16 \qquad x = \pm 4$$

n.71 $\quad \dfrac{x^2}{3-k} - \dfrac{y^2}{-(4k+3)} = 1$

$$\begin{cases} 3-k > 0 \\ -(4k+3) > 0 \end{cases} \qquad \begin{cases} 3-k > 0 \\ 4k+3 < 0 \end{cases}$$

$$\begin{cases} k < 3 \\ k < -\dfrac{3}{4} \end{cases}$$

$$-\frac{x^2}{a^2} + \frac{y^2}{b^2} = +1$$

$$\begin{cases} 3-k < 0 \\ 4k+3 > 0 \end{cases} \qquad \begin{cases} k > 3 \\ k > -3/4 \end{cases}$$

$$\underline{k > 3}$$

$$F(0; -2\sqrt{5})$$

$$-\frac{x^2}{3-k} + \frac{y^2}{4k+3} = +1$$

$$k - \cancel{3} + 4k + \cancel{3} = 20$$

$$5k = 20$$

$$k = 4$$

$$\frac{x^2}{3-k} + \frac{y^2}{4k+3} = 1$$

$$\begin{cases} 3-k>0 \\ 4k+3<0 \end{cases} \cup \begin{cases} 3-k<0 \\ 4k+3>0 \end{cases}$$

$$\begin{cases} k<3 \\ k<-\frac{3}{4} \end{cases} \cup \begin{cases} k>3 \\ k>-3/4 \end{cases}$$

$$k<-\frac{3}{4} \vee k>3$$

$$-\frac{x^2}{3-k}+\frac{y^2}{4k+3}=-1$$

$$\begin{cases} 3-k>0 \\ 4k+3>0 \end{cases} \qquad \begin{cases} 3-k<0 \\ 4k+3>0 \end{cases}$$