Rational Functions

ratio of 2 polynomials Ex $y = \frac{x^2+5}{1-x^3}$

Ex. $y = \frac{2x+1}{1x-2}$

x-intercept(s) $-1/2$

y-intercept $-1/2$

Vertical asymptote(s) $x=2$

non-vertical asymptote $y=2$

$0 = \frac{2x+1}{x-2}$

$2x+1=0$

$2x=-1$

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

$y = \frac{2(0)+1}{0-2}$

denom

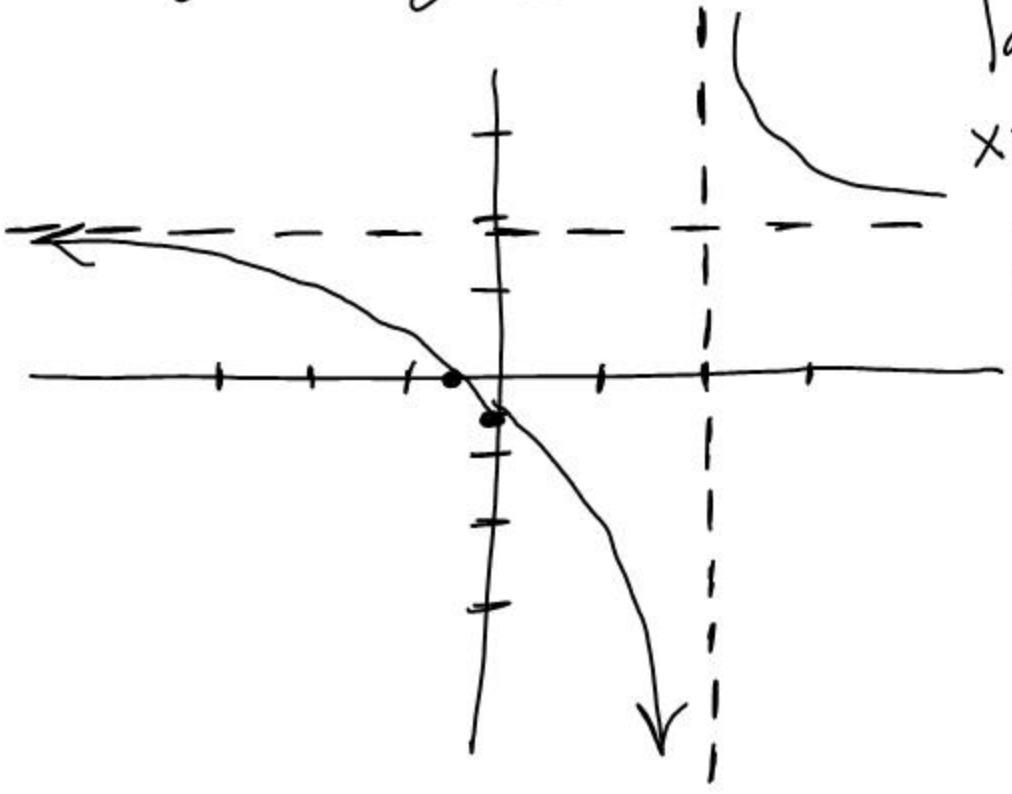
$x-2=0$

$x=2$

For the NVA, put in a large number for x

$x=1000$

$y = \frac{2001}{998} \approx 2$



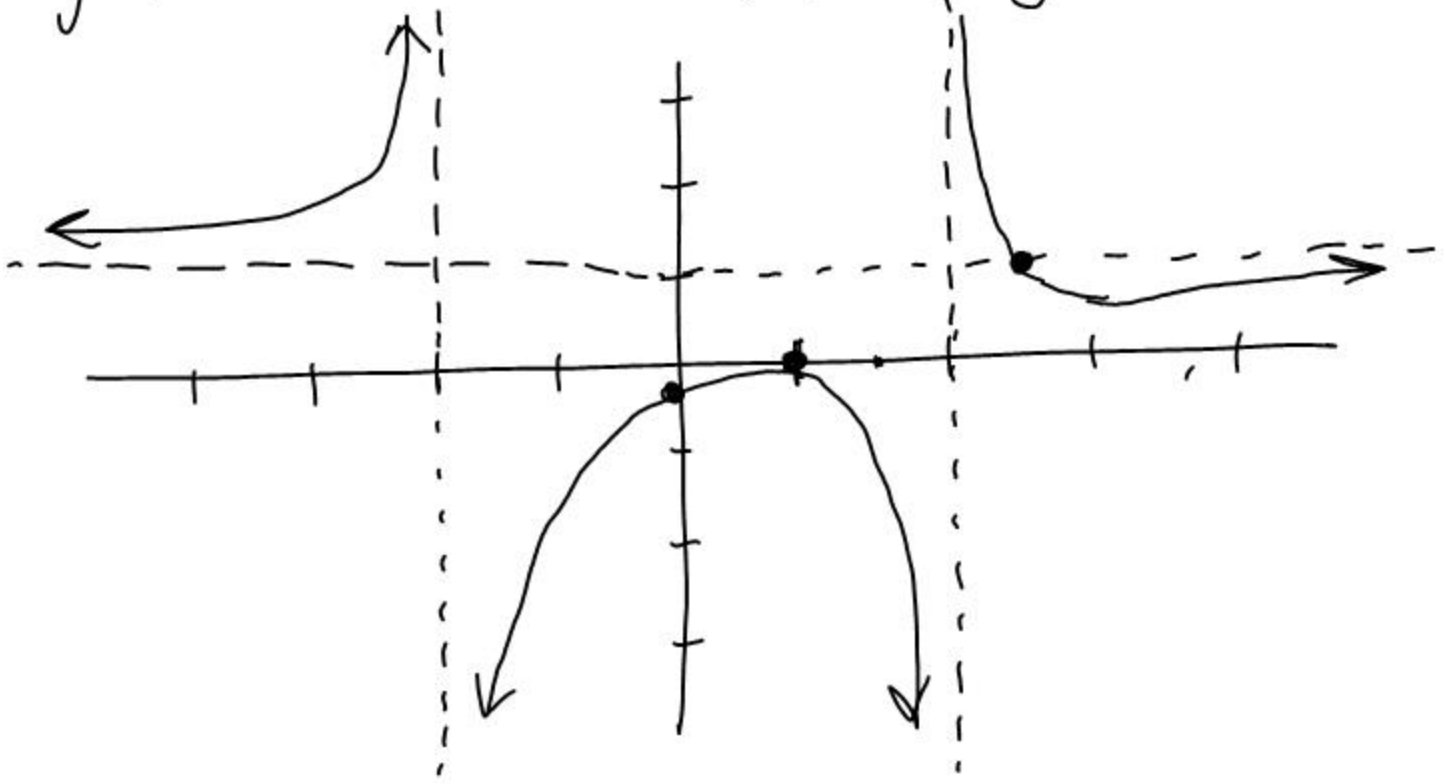
Ex. $y = \dfrac{1x^2 - 2x + 1}{1x^2 - 4} = \dfrac{(x-1)(x-1)}{(x-2)(x+2)}$

x-int 1

y-int $-1/4$

V.A. $x = 2,\ x = -2$

NVA $y = 1$



Does the graph cross its NVA?

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

$$x^2 - 2x + 1 = x^2 - 4$$

$$-2x = -5$$

$$x = 5/2$$