Practice Quiz 3 12/18/2024

Consider the graph of this rational function:

$$w(x)=\frac{(x-1)(x+3)(x-5)}{(x+2)^2(x-4)}$$

Find

The x-intercepts, if they exist. Write them as ordered pairs (x, y)

(1,0) (-3,0) (5,0)

Consider the vertical asymptotes. Write them as equations of vertical lines

$x=-2$ $x=4$

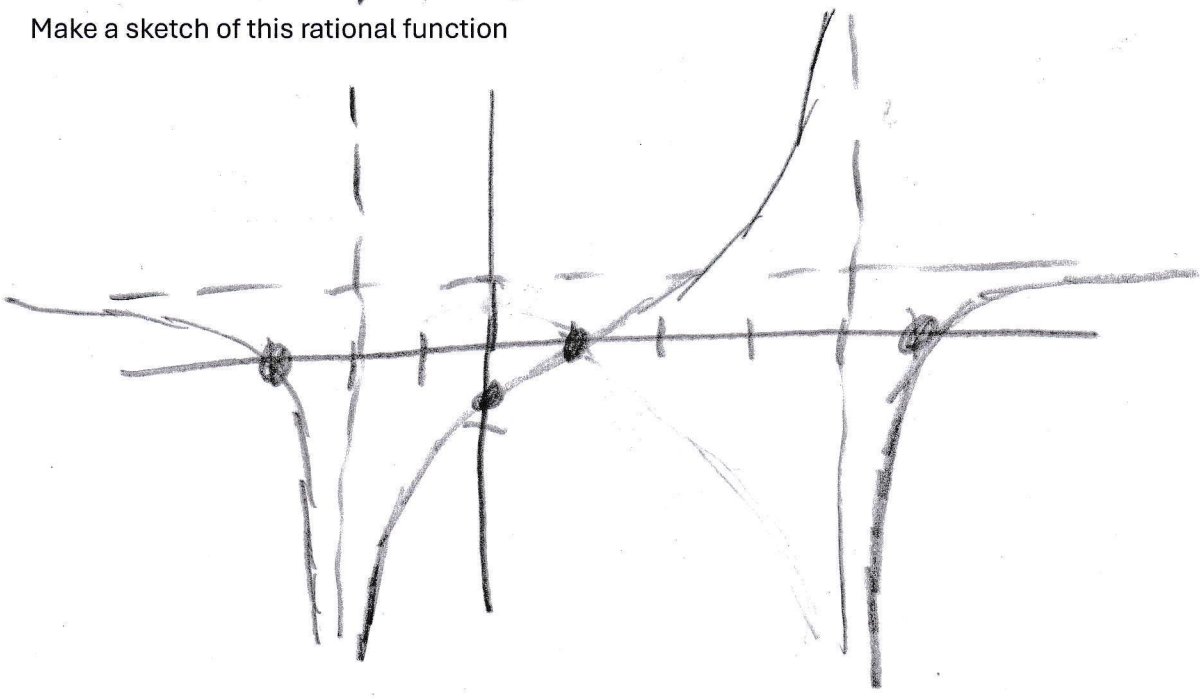
Does this function have a horizontal asymptote? What is it? Write as the equation of a horizontal line.

Same power so $y=1$

Find the y-intercept. Write as an ordered pair (x, y)

$\left(0,-\frac{15}{16}\right)$

Make a sketch of this rational function



Consider the graph of this rational function:

$$y = \frac{x^2 + 3x}{x^2 + 5x + 6}$$

$\frac{x(x+3)}{(x+2)(x+3)}$ Hole @ $x = -3$

Find

The x-intercepts. Write them as ordered pairs (x, y)

(0, 0)

Consider the vertical asymptotes. Write them as equations of vertical lines

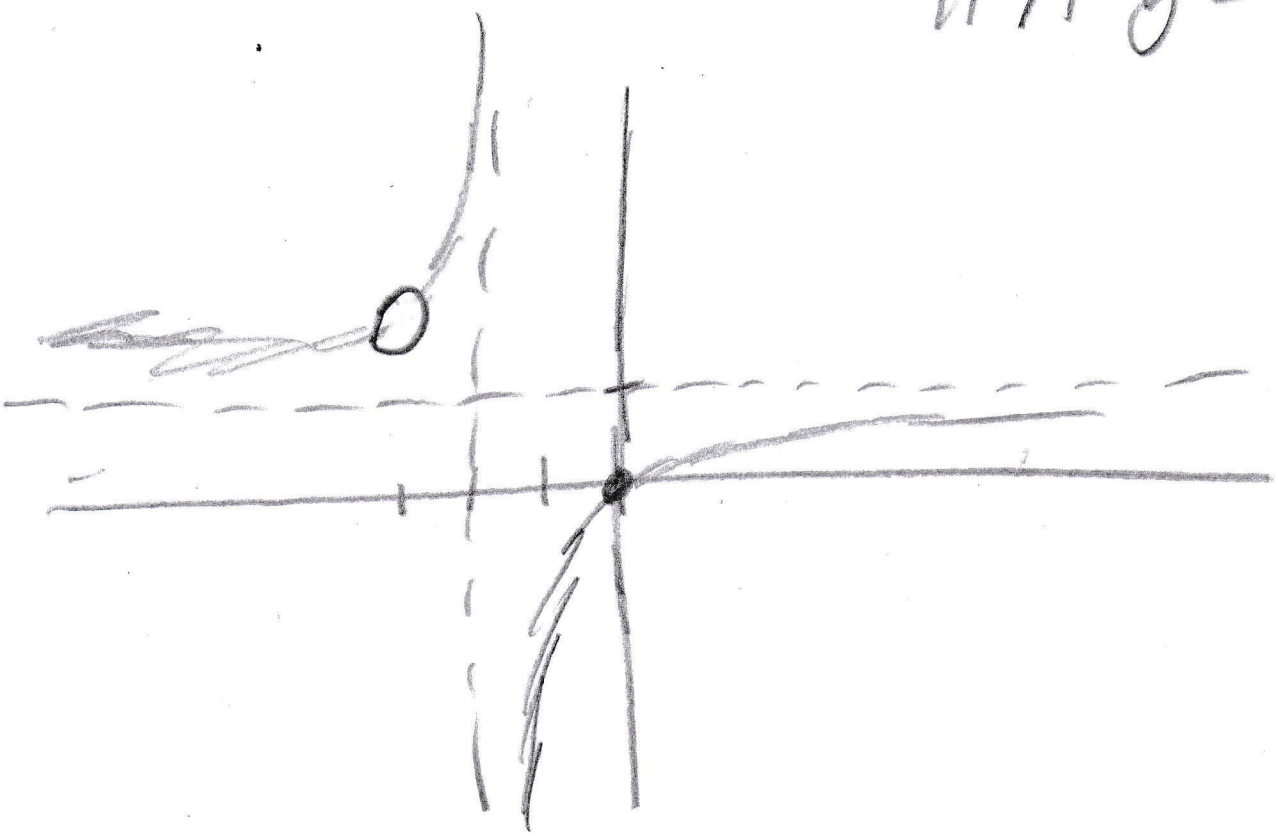
$x = -2$

Find the y-intercept. Write them as ordered pairs (x, y)

(0, 0)

Make a sketch of this rational Function

HA $y = 1$



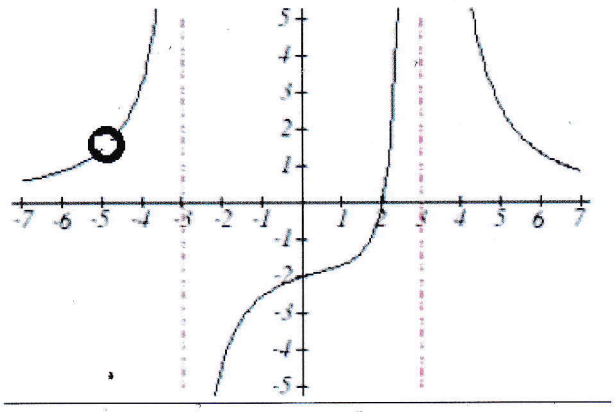
Write a rational function that has these characteristics:

Vertical asymptotes at $x = -3$ and $x = 6$

$x$ intercepts at $(-2,0)$ and $(1,0)$ Horizontal asymptote at $y = -2$

$$y = \frac{-2(x+2)(x-1)}{(x+3)(x-6)}$$

Write a rational function that has this graph



$$y = \frac{27(x-2)(x+5)}{(x+3)(x-3)^2(x+5)}$$

$$-2 = \frac{-2a}{27}$$

$$27 = a$$