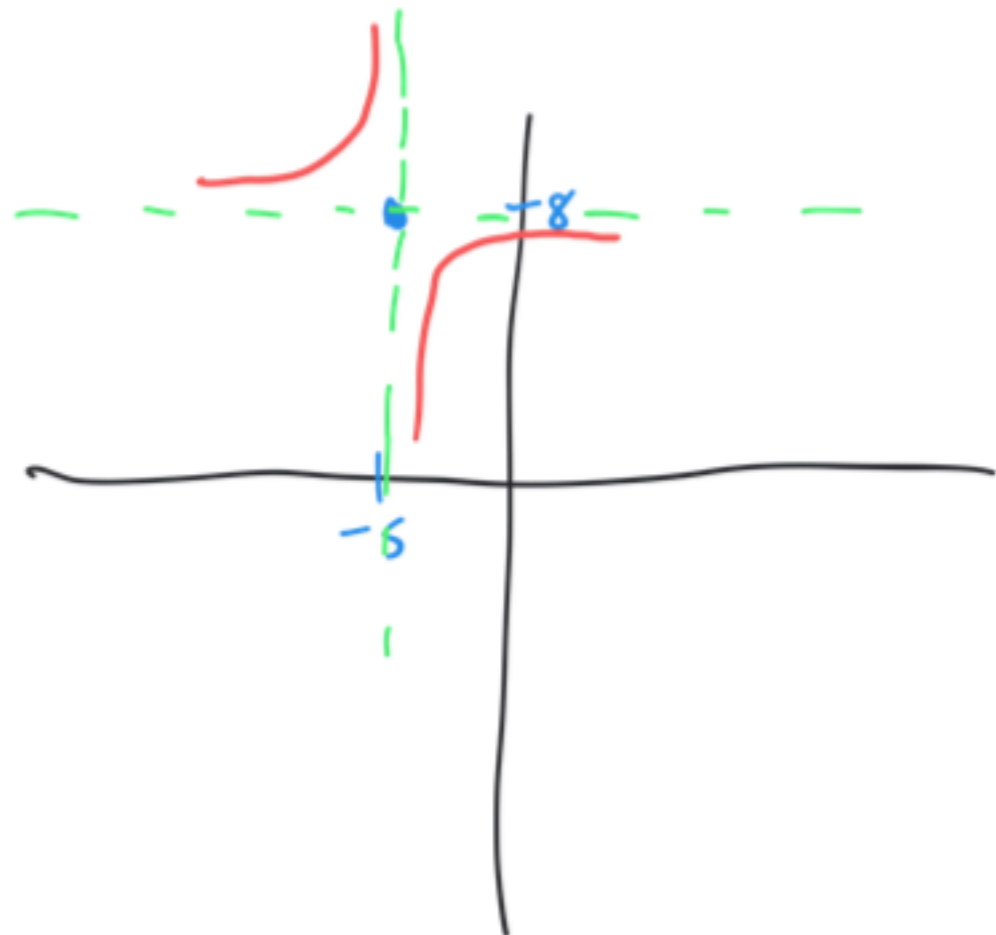


Write the equation for the vertical and horizontal asymptotes:  $y = \frac{3}{x+5} + 8$

VA:  $x = -5$

HA:  $y = 8$



Find restrictions and simplify:  $\frac{x^3 - 4x^2 + 3x - 12}{x^2 - 6x + 8}$

$$\frac{x^2(x-4) + 3(x-4)}{(x-4)(x-2)} = \frac{(x^2+3)\cancel{(x-4)}}{\cancel{(x-4)}(x-2)} = \boxed{\frac{x^2+3}{x-2}}$$

$$\begin{array}{r} 8 \\ -4 \quad -2 \\ \hline -6 \end{array}$$

$$x-4=0$$

$$x-2=0$$

$x=4$        $x=2$   
Restrictions

Solve:  $\frac{x-5}{3x+2} = \frac{5}{8}$

$$8(x-5) = 5(3x+2)$$

$$8x - 40 = 15x + 10$$

$-15x$                    $-15x$

$$-7x - 40 = 10$$

$+40$                    $+40$

$$\frac{-7x}{-7} = \frac{50}{-7}$$

$$x = \boxed{\frac{-50}{7}}$$

$$\frac{(u-3)(u+1) \cancel{u-7}}{\cancel{u-3}} - 1 = \frac{(u-3)(u+1) \cancel{u+3}}{\cancel{u+1}}$$

Solve:

$$u^2 - 6u - 7 - (u^2 - 2u - 3) = u^2 - 9$$

$$\cancel{u^2} - \underline{6u} - \underline{7} - \cancel{u^2} + \underline{2u} + \underline{3} = u^2 - 9$$

$$\begin{array}{r} -4u - 4 \\ +4u + 4 \end{array} = u^2 - \underline{9} + 4u + \underline{4}$$

$$0 = u^2 + 4u - 5$$

$$\begin{array}{r} -5 \\ 5 \times -1 \\ 4 \end{array}$$

$$0 = (u+5)(u-1)$$

$$u+5=0 \quad u-1=0$$

$$\boxed{u = -5 \ \& \ 1}$$