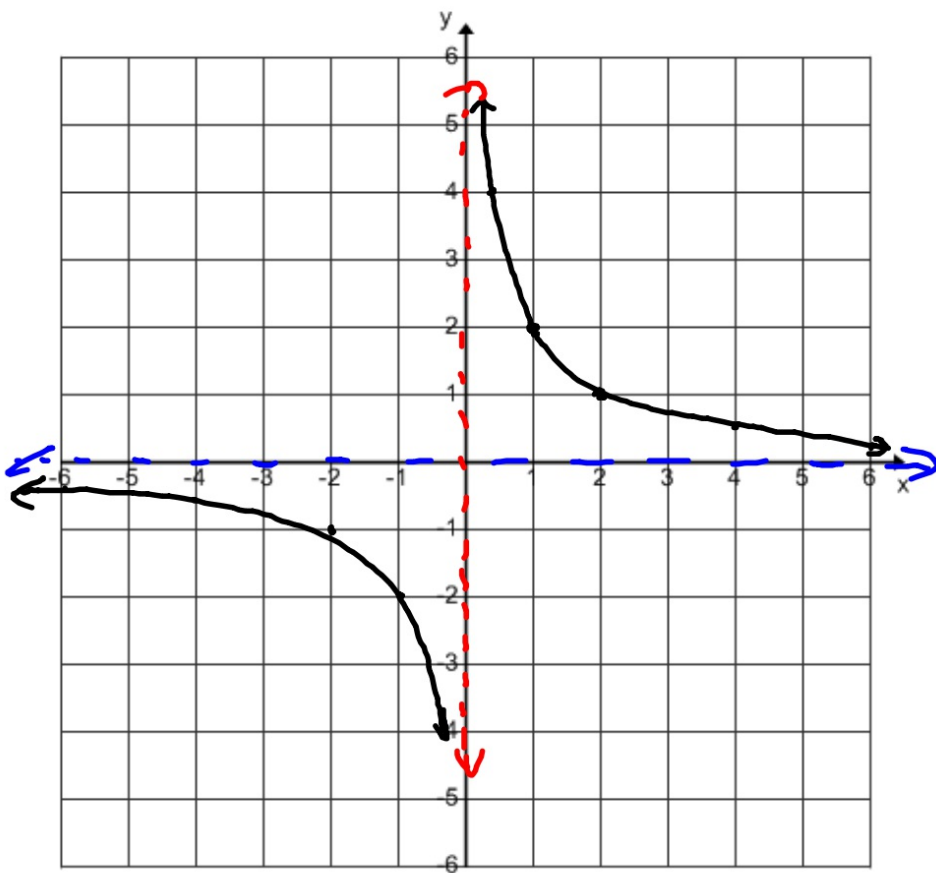


11-28-17 1st Try



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

x	y
2	1
4	1/2
6	1/3
-2	-1
-4	-1/2
-6	-1/3

Bobo

Botn \rightarrow Horizontal

Eats DC Asymptote

$\leftarrow \text{-----} \rightarrow$

Bobo \rightarrow Bigger on bottom $y=0$

Botn \rightarrow Bigger on top None

\therefore Eats DC \rightarrow Exponents are the same

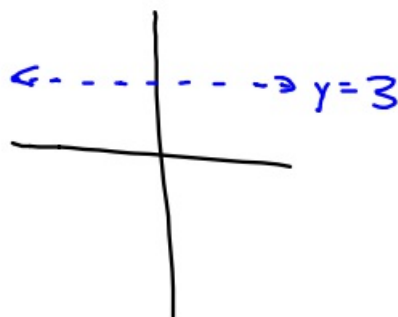
Divide Coefficients

$$\textcircled{1} \quad y = \frac{5x^{\textcircled{4}} + 6x - 1}{3x^{\textcircled{2}} - x + 11}$$

Botn \rightarrow None No horizontal asymptote

$$\textcircled{2} \quad y = \frac{\boxed{6}x^3 + 5}{\boxed{2}x^3 - 1}$$

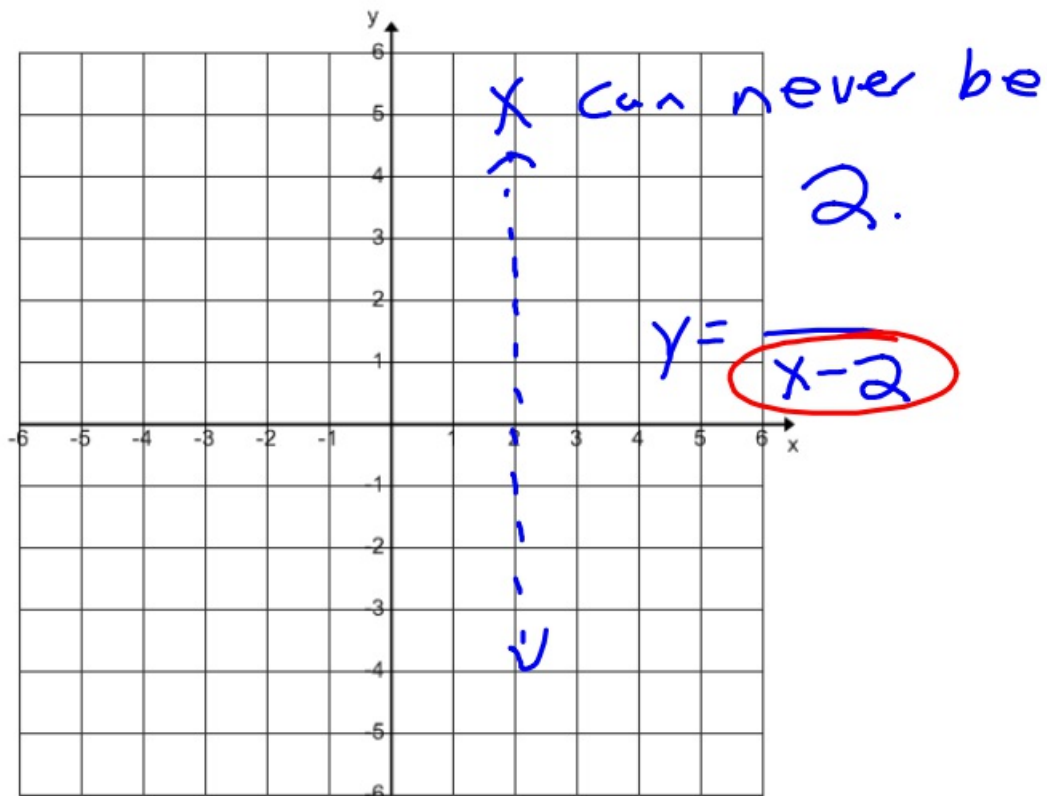
EATS DC $y = \frac{6}{2}$
 $y = 3$



③ $y = \frac{6x^4 - 7}{5x^2 - 2x + 1}$ Bob O
 $y = 0$

④ $y = \frac{6x^4 + 8}{2x - 1}$ Bot N
 None

⑤ $y = \frac{1x^2 + 8x - 1}{3x^2 + 7}$ EATS DC
 $y = \frac{1}{3}$



Vertical Asymptote

Look at denominator and figure what x cannot be.

$$\text{Ex: } y = \frac{5x^4 - 8x + 1}{x - 5}$$

$$\begin{array}{r} x - 5 = 0 \\ +5 \quad +5 \\ \hline \end{array}$$

$$x = 5 \leftarrow \text{Vertical Asymptote}$$

$$\textcircled{6} \quad y = \frac{8x^8 + 1}{2x - 1}$$

$$2x - 1 = 0$$

$$\begin{array}{r} +1 \quad +1 \\ \hline 2x = 1 \\ \frac{2x}{2} = \frac{1}{2} \end{array}$$

$$\text{Vertical } x = \frac{1}{2}$$

$$\textcircled{7} \quad y = \frac{x^2 - 10}{x + 5}$$

$$x + 5 = 0$$

$$\begin{array}{r} -5 \quad -5 \\ \hline \end{array}$$

$$\text{Vertical } x = -5$$

Give horizontal and vertical

$$\textcircled{8} \quad y = \frac{3x^4 + 5}{6x^4}$$

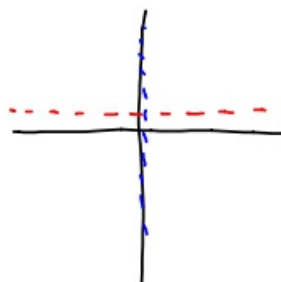
$$\text{H: Ents DC} \quad y = \frac{3}{6}$$

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

$$\text{V: } \frac{6x^4}{6} = \frac{0}{6}$$

$$x^4 = 0$$

$$x = 0$$



$$\textcircled{9} \quad y = \frac{5x^3 - 1}{x + 4}$$

H: Bot N None

$$V: x + 4 = 0$$

$$x = -4$$

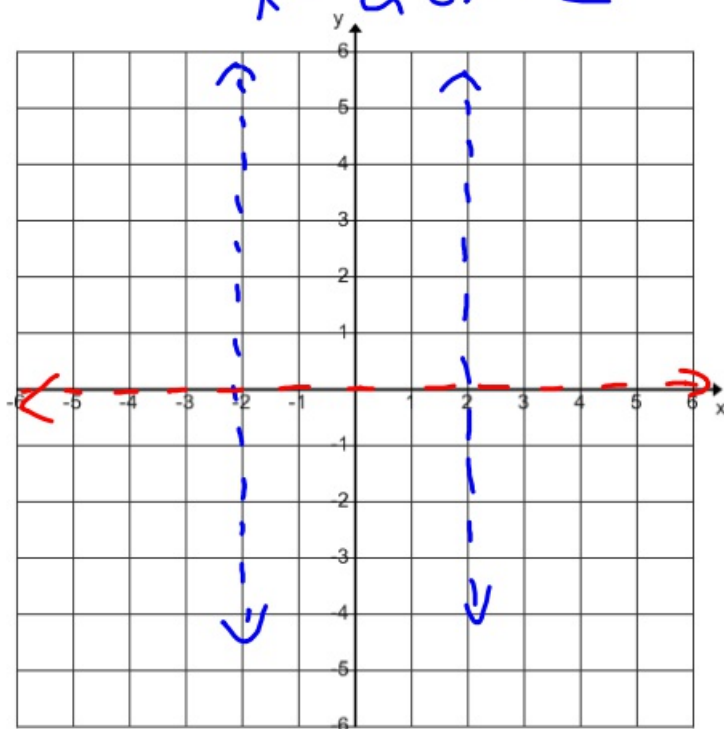
$$\textcircled{10} \quad y = \frac{5x - 7}{x^2 - 4}$$

H: Bot 0 $y = 0$

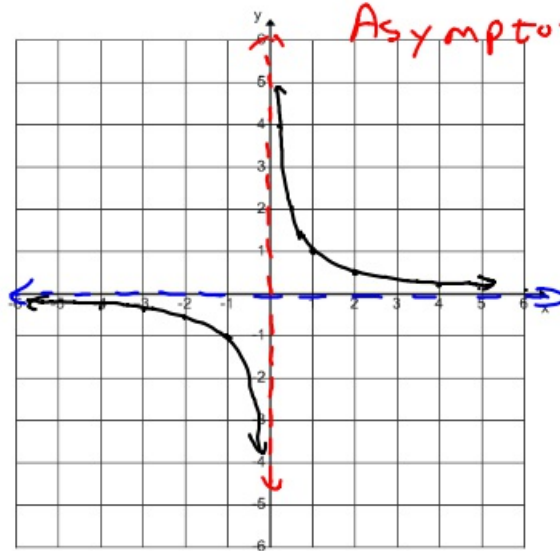
$$V: x^2 - 4 = 0$$

$$(x - 2)(x + 2) = 0$$

$$x = 2 \text{ or } -2$$



11-28-17 3rd Trig



Asymptotes

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

x	y
1	1
2	1/2
4	1/4
1/2	2
1/4	4

Bobo \rightarrow Bigger on bottom $y=0$

Bot n \rightarrow Bigger on top None

Eats DC Exponents are the same

Horizontal

Divide Coefficients

$$\textcircled{1} y = \frac{x^8 + 7x^2 - 1}{x^5 - 10x^4 + 3x - 10}$$

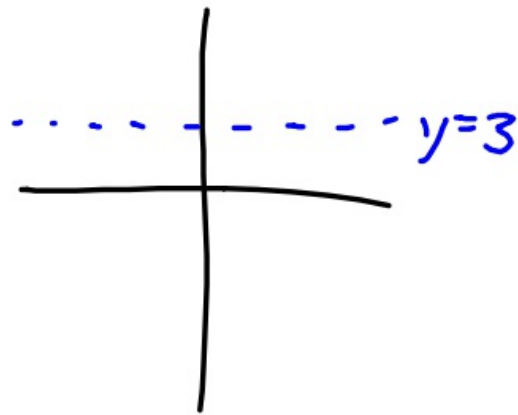
Bot N None

No asymptote

$$\textcircled{2} \quad y = \frac{\textcircled{6}x^4 + 6x}{\textcircled{2}x^4 + 5x - 1}$$

Eats DC

$$y = \frac{6}{2} = 3$$

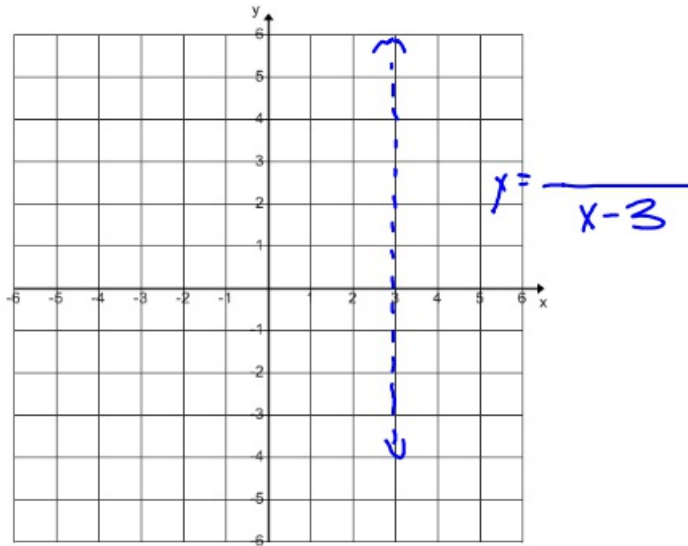


$$\textcircled{3} \quad y = \frac{5x + 8}{x^4 + 6x - 1}$$

Bob 0 $y = 0$

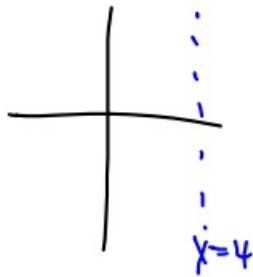
$$\textcircled{4} \quad y = \frac{6x^2 + 8}{1x^2 - 15}$$

Eats DC $y = \frac{6}{1} = 6$



Vertical \rightarrow denominator is zero

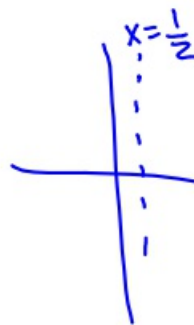
Ex: $y = \frac{x^4 + 6x}{2x - 8}$ $2x - 8 = 0$
 $x = 4$



Vertical

⑤ $y = \frac{8x^4 + 6x + 1}{2x - 1}$

$$\begin{array}{r} 2x - 1 = 0 \\ +1 \quad +1 \\ \hline 2x = 1 \\ x = \frac{1}{2} \end{array}$$



Give H and V asymptotes

$$\textcircled{6} \quad y = \frac{5x^3 - 5x^2 + 7}{x - 8}$$

H: Bot n

None

No horizontal
asymptote

$$\text{V: } x - 8 = 0 \\ x = 8$$

$$\textcircled{7} \quad y = \frac{3x + 5}{x^2 - 4}$$

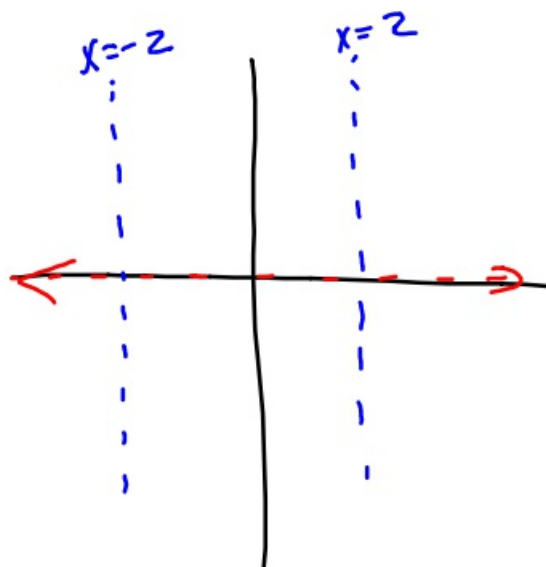
H: Bot 0 $y = 0$

$$\text{V: } x^2 - 4 = 0$$

$$\sqrt{x^2} = \sqrt{4}$$

$$x = \pm 2$$

$$x = 2 \text{ and } x = -2$$



$$\textcircled{8} \quad y = \frac{3x-1}{x+5}$$

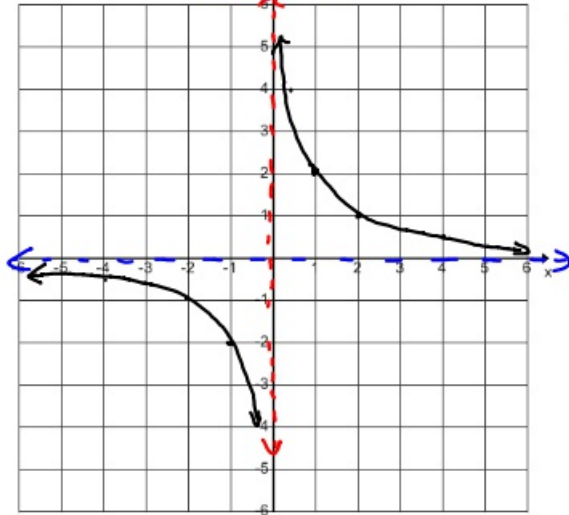
H: Eats DC

$$y = \frac{3}{1} \quad \textcircled{y=3}$$

$$V: \quad \begin{array}{r} x+5=0 \\ -5 \quad -5 \\ \hline \end{array}$$

$$\textcircled{x=-5}$$

11-28-17 4th Trig
Asymptotes



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

x	y
1	2
2	1
4	1/2
1/2	4
1/4	5

Horizontal Asymptotes

Bobo - Bigger on bottom $\rightarrow y=0$

But n - Bigger on top \rightarrow None

EATS DC \rightarrow Exponents are the same

Divide coefficients

$$\textcircled{1} \quad y = \frac{x^4 + 6x^3 - 1}{x^7 + 6x - 1000}$$

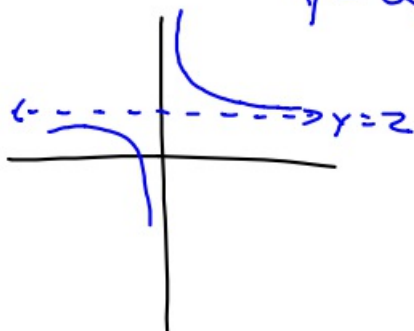
Bobo $y=0$

$$\textcircled{2} \quad y = \frac{\textcircled{4}x^5 - 6x + 1}{\textcircled{2}x^5 + 8}$$

EATS DC

$$y = \frac{4}{2} = 2$$

$$y = 2$$



$$\textcircled{3} \quad y = \frac{x^8}{2x^2 - 5}$$

$B_0 \neq N$ None

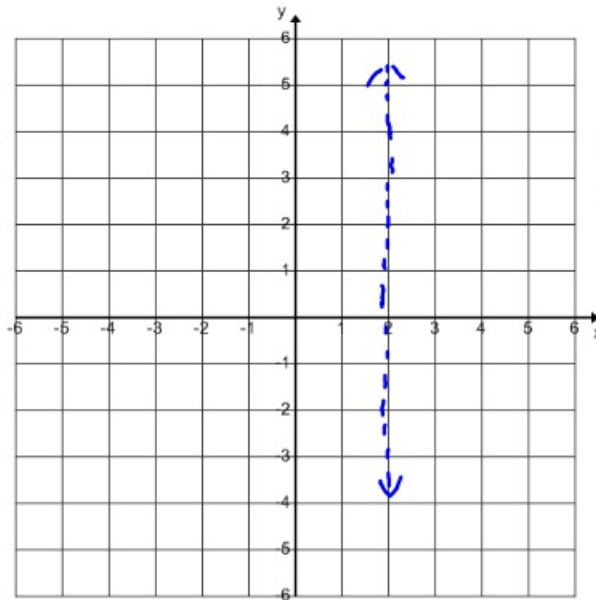
No horizontal
asymptote

$$\textcircled{4} \quad y = \frac{6x^8 + 16x^2 - 1}{1x^8 + 5x^2 + x - 3}$$

Ends DC

$$y = \frac{6}{1}$$

$$y = 6$$



$$y = \frac{\quad}{x-2}$$

Vertical asymptotes

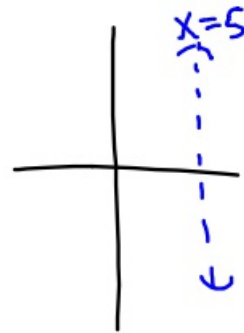
set denominator = 0.

vertical only

$$\textcircled{5} \quad y = \frac{x^4 + 6x - 1}{2x - 10}$$

$$2x - 10 = 0$$

$$x = 5$$



$$\textcircled{6} \quad y = \frac{5x + 3}{x^2 - 9}$$

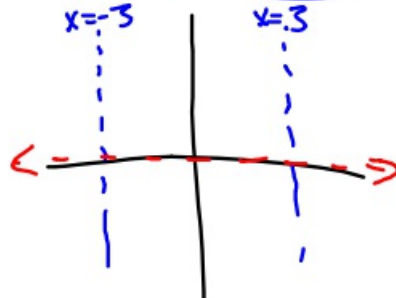
$$x^2 - 9 = 0$$

$$(x+3)(x-3) = 0$$

$$x = -3 \quad x = 3$$

$$x = -3$$

$$x = 3$$



$$x^2 - 9 = 0$$

$$\sqrt{x^2} = \sqrt{9}$$

$$x = \pm 3$$

Both H and V

$$\textcircled{7} \quad y = \frac{4x-1}{x+2}$$

H: Eats DC $y = \frac{4}{1}$
 $y = 4$

V: $x+2=0$
 $x = -2$

$$\textcircled{8} \quad y = \frac{6x^8 + 2x - 1}{x - 10}$$

H: BOT \textcircled{N} None

V: $x - 10 = 0$
 $x = 10$

$$\textcircled{9} \quad y = \frac{8x^2 + 5}{x^2 - 4}$$

H: Eats DC $y = 8$

V: $x^2 - 4 = 0$

$x = 2$ and $x = -2$