

Sketch each of the following functions by hand.

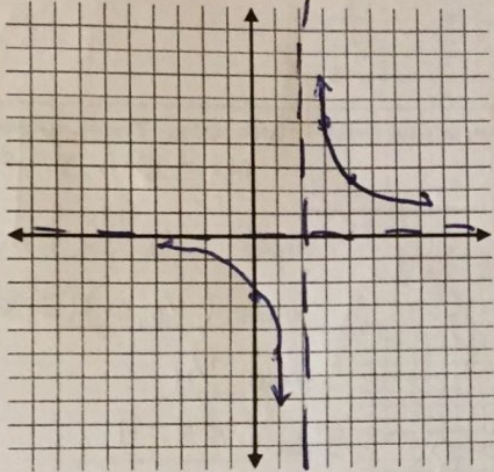
1. $f(x) = \frac{5}{x-2}$
 Hole(s): none
 x-int(s): none
 y-int: (0, -5/2)
 VA: x=2
 HA: y=0
 OA: none

Does the graph cross the HA or OA? no

$$\frac{5}{x-2} = 0$$

$$5 = 0$$

no



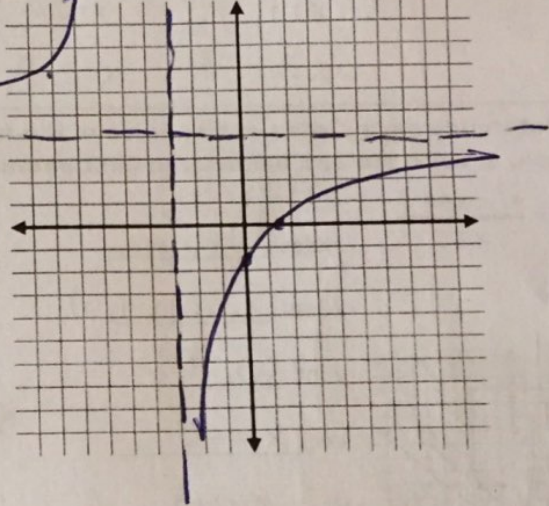
2. $f(x) = \frac{4x-5}{x+3}$
 Hole(s): none
 x-int(s): (5/4, 0)
 y-int: (0, -5/3)
 VA: x=-3
 HA: y=4
 OA: none

Does the graph cross the HA or OA? no

$$\frac{4x-5}{x+3} = 4$$

$$4x+12 = 4x-5$$

$$12 \neq -5$$



3. $f(x) = \frac{2x^2+7}{x^2+5}$
 Hole(s): none
 x-int(s): none
 y-int: (0, 7/5)
 VA: none
 HA: y=2
 OA: none

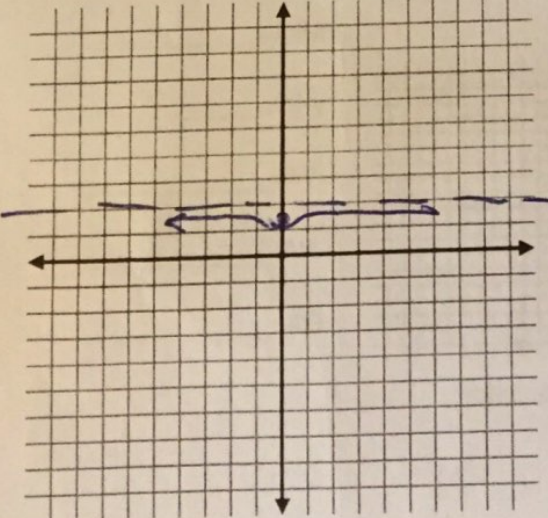
Does the graph cross the HA or OA? no

$$\frac{2x^2+7}{x^2+5} = 2$$

$$2x^2+7 = 2x^2+10$$

$$7 \neq 10$$

h.A



4. $f(x) = \frac{x^3}{x^2-4}$
 Hole(s): none
 x-int(s): (0, 0)
 y-int: (0, 0)
 VA: x=2, x=-2
 HA: none
 OA: y=x

Does the graph cross the HA or OA? yes @ x=0

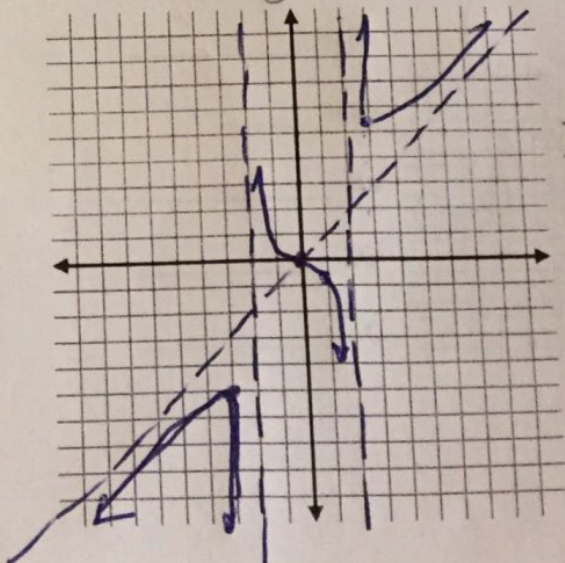
$$\frac{x^3}{x^2-4} = x$$

$$x^3 = x^3 - 4x$$

$$0 = -4x$$

$$x = 0$$

O.A



5. $f(x) = \frac{x-2}{x^2-2x-8} = \frac{x-2}{(x-4)(x+2)}$

Hole(s): none

x-int(s): (2,0)

y-int: (0, 1/4)

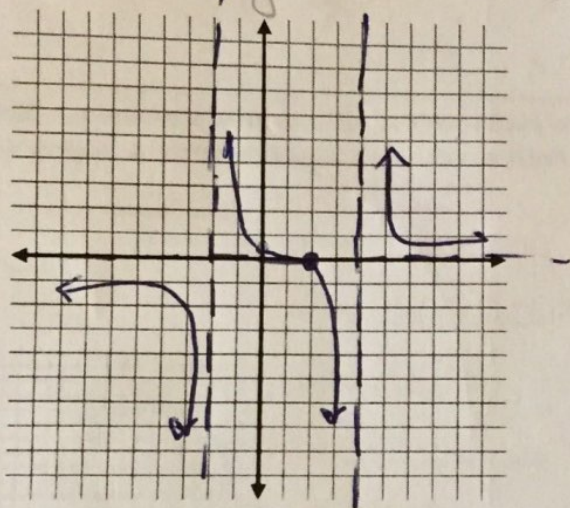
VA: x = -2 x = 4

HA: y = 0

OA: none

Does the graph cross the HA or OA? yes @ x=2

$$\begin{array}{r} x \ 4 \\ -3 \ \underline{-3} \\ 5 \ 3/7 \end{array}$$



6. $f(x) = \frac{3x^2-3}{x^2-16} = \frac{3(x+1)(x-1)}{(x+4)(x-4)}$

Hole(s): none

x-int(s): (-1,0)(1,0)

y-int: (0, 3/16)

VA: x = 4 x = -4

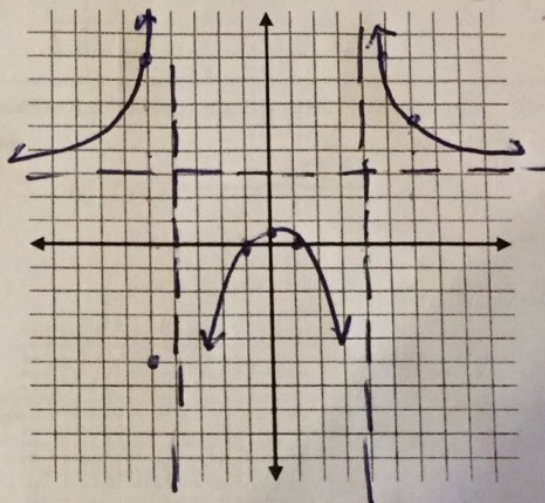
HA: y = 3

Does the graph cross the HA or OA? no

$$3 = \frac{3x^2}{x^2-16}$$

$$3x^2 - 48 = 3x^2 - 3$$

$$-48 = -3$$



$$\begin{array}{r} x \ 4 \\ 6 \ \underline{-105} \\ 5 \ \sim 8 \\ -5 \ 8 \end{array}$$

7. $f(x) = \frac{x^3-3x^2+3x+1}{x-1}$

Hole(s): _____

x-int(s): _____

y-int: _____

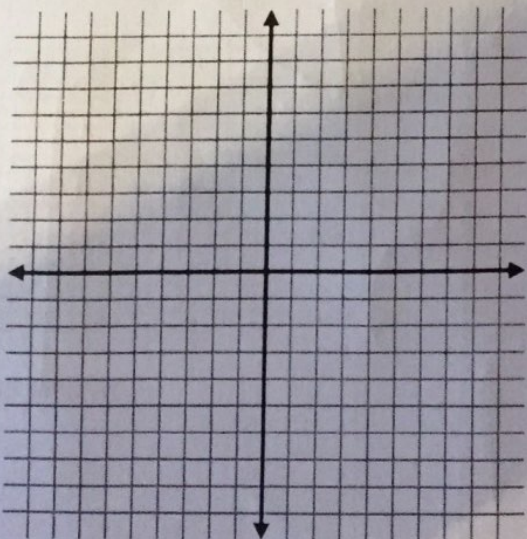
VA: _____

HA: _____

OA: _____

Does the graph cross the HA or OA? _____

omit



8. $g(x) = \frac{x^2-5x-6}{x^2-x-2} = \frac{(x-6)(x+1)}{(x-2)(x+1)}$

Hole(s): (-1, 7/3)

x-int(s): (6,0)

y-int: (0, 3)

VA: x = 2

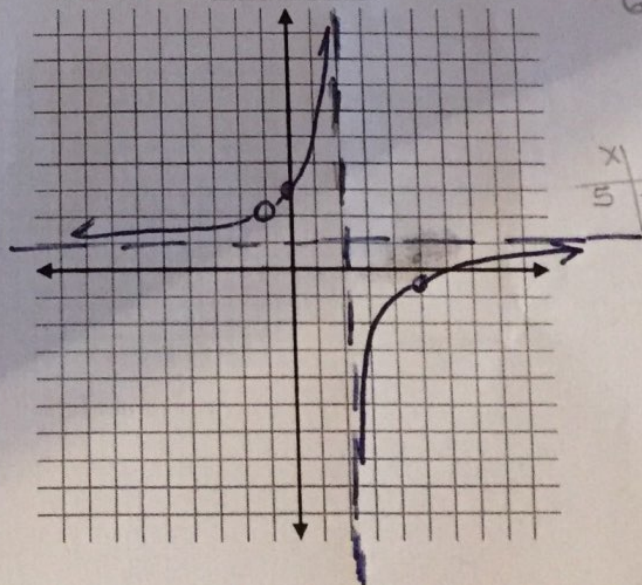
HA: y = 1

OA: none

Does the graph cross the HA or OA? no

$$\frac{x-6}{x-2} = 1$$

$$-6 = -2$$



$$\begin{array}{r} x \ 4 \\ 5 \ \underline{-6} \\ 18 \end{array} = -1/3$$