

**Practise**

1. The equations and graphs of four rational functions are shown. Which graph matches which function? Give reason(s) for each choice.

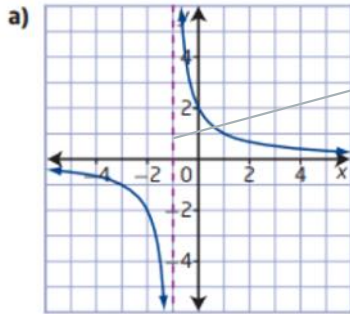
$A(x) = \frac{2}{x} - 1$

$B(x) = \frac{2}{x+1}$

$C(x) = \frac{2}{x-1}$

$D(x) = \frac{2}{x} + 1$

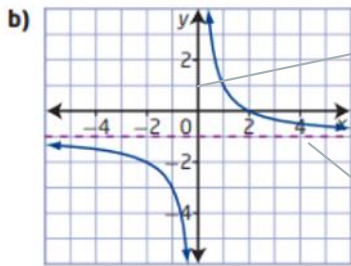
"line" or "line" form  $\rightarrow y = \frac{a}{x-h} + k$



VA @  $x = -1 \Rightarrow$  an npv/root of the denom. look for  $(x-(-1)) = (x+1) \Rightarrow$  option B  
there is only one function w/ a denominator of  $(x+1)$

graphs w/  $HA = \emptyset \Rightarrow$  cannot be (A) or (D)

as for B & C: const/line  $\rightarrow$  always  $HA = 0$  b/c leading coeff. of the const is  $\emptyset$ :  $\frac{b}{mx+n} = \frac{\emptyset \cdot x + b}{mx+n} \rightarrow HA = \frac{\emptyset}{m} = \emptyset$

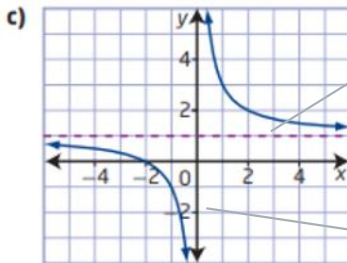


VA = 0

$y = \frac{a}{x-h} + k$

$-1 = \frac{a}{x} - 1 \Rightarrow$  option A

HA = -1



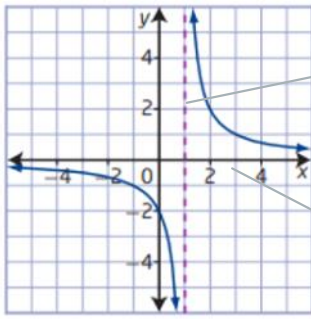
HA = 1

$y = \frac{a}{x-h} + k$

$= \frac{a}{x} + 1 \Rightarrow$  option D

VA =  $\emptyset$

d)



$VA = +1$

$HA = \emptyset$

$$y = \frac{a}{x-h} + k$$

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

option c