12 Sep 2020 Albert H

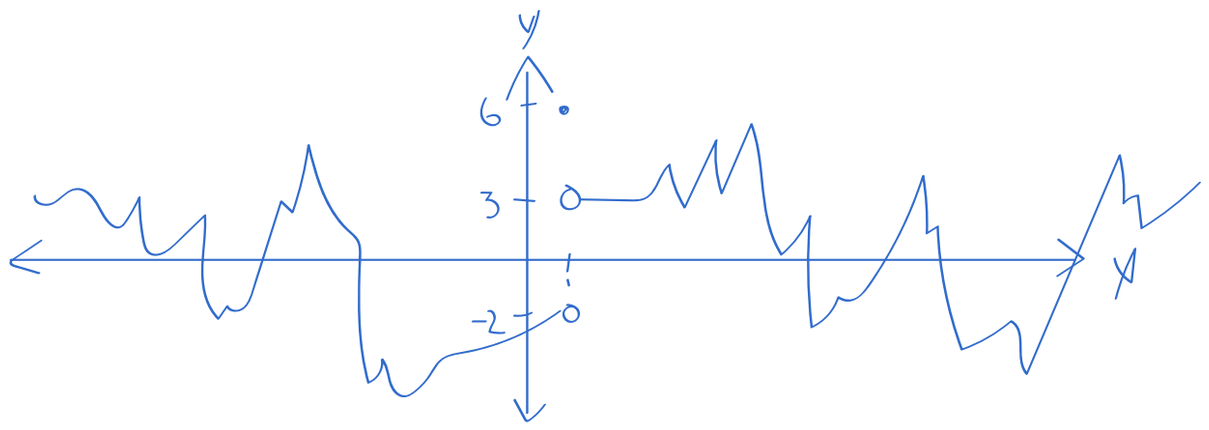
A3 a) $f(-3) = 5$; $\lim_{x\to a^-} = \lim_{x\to a^+} = \lim_{x\to a} = 2$

b) $f(1) = 4$; $\lim_{x\to a^-} = 4$ $\lim_{x\to a^+} = -3$ $\lim_{x\to a} = DNE$ (left and right hand limits have different values)

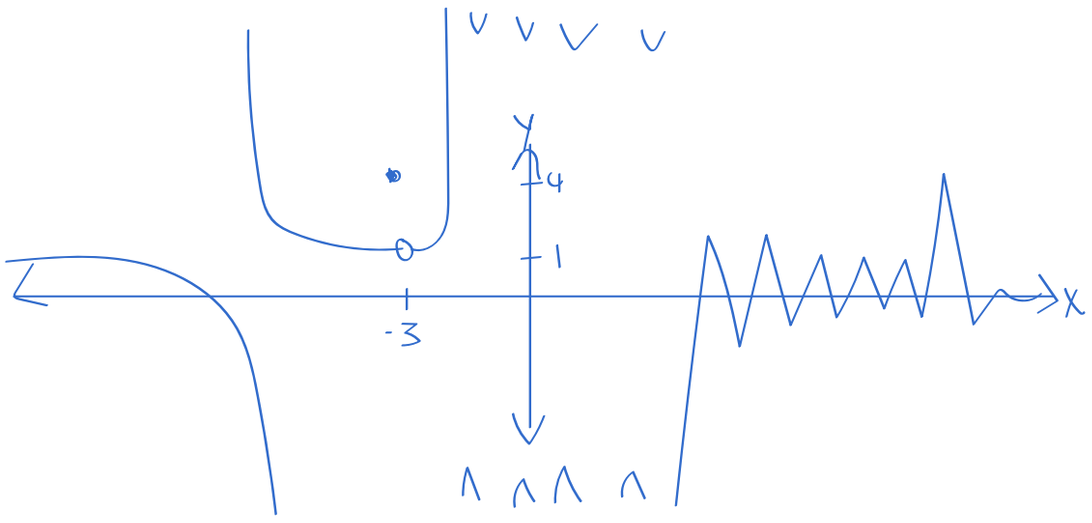
c) $f(1) = DNE$; $\lim_{x\to a^-} = \lim_{x\to a^+} = \lim_{x\to a} = -1$
it's a hole!

d) $f(2) = 0$; $\lim_{x\to a^-} = 0$ $\lim_{x\to a^+} = \lim_{x\to a} = DNE$ (doesn't approach a value)

A4)

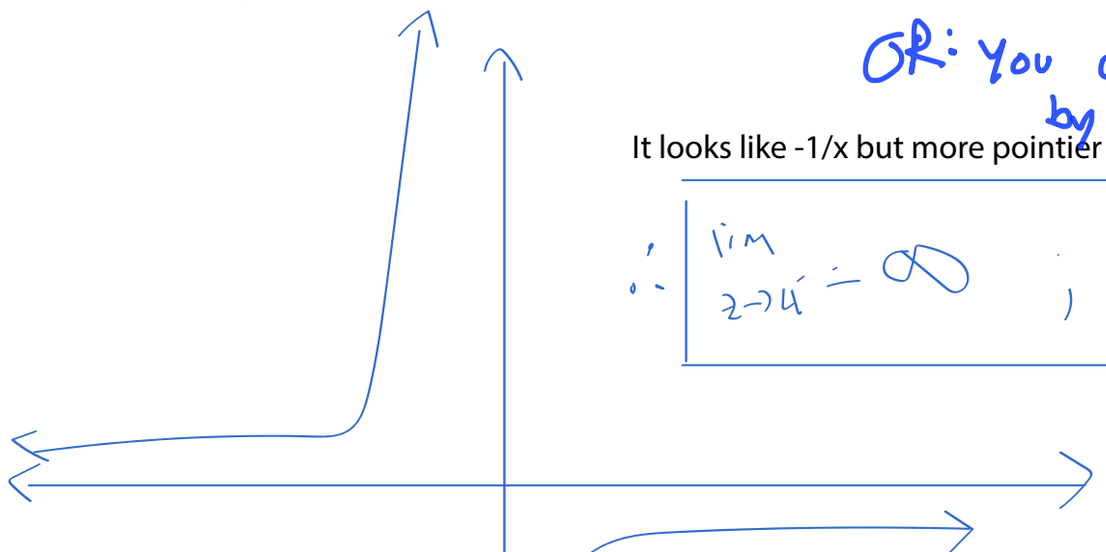


A5)



B2) $\frac{17}{(4-z)^3} = \frac{17}{(4-z)(4^2+z^2-2*4z)} = \frac{17}{\text{I give up}}$

$17 \times \frac{1}{(-z+4)^3} = 17\frac{-1}{(z-4)^3} = \frac{-17}{z^3}$ shifted by 4 $\approx \frac{-1}{x^3}$ around $x=0$



OR: You can just think about how it would look by mentally plugging in closer numbers

It looks like -1/x but more pointier

$\therefore$ $\lim_{z\to 4^-} = \infty$; $\lim_{z\to 4^+} = -\infty$; $\lim_{z\to 4} = DNE$

$a^3+b^3 = (a+b)(a^2+b^2-2ab)$

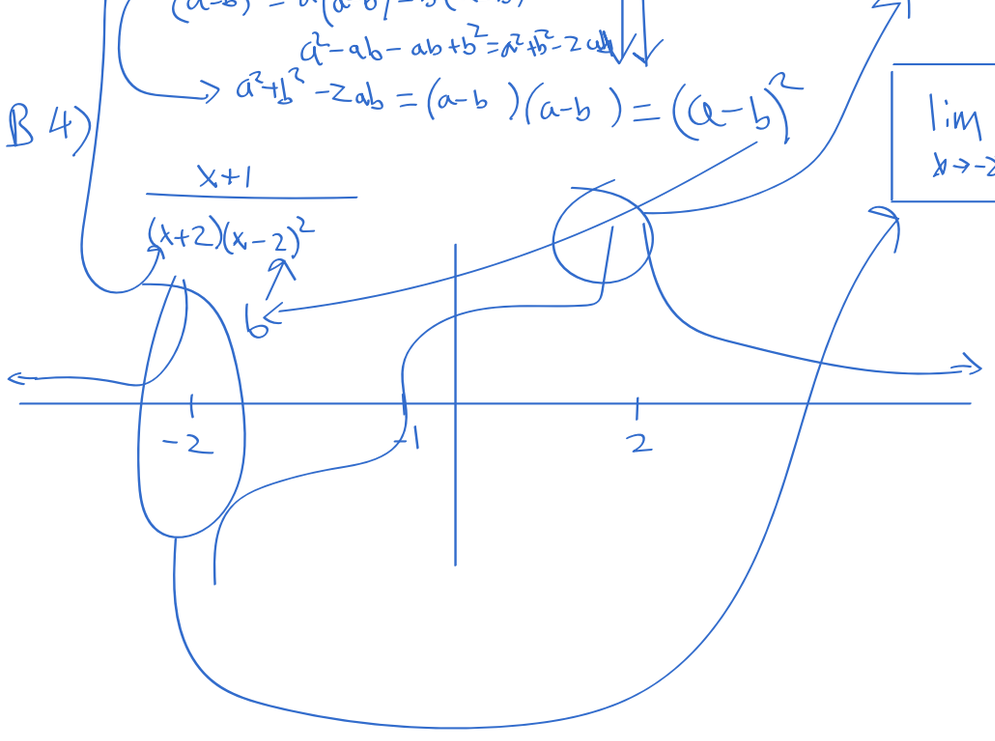
$(a-b)^2 = a(a-b) - b(a-b)$

$a^2 - ab - ab + b^2 = a^2+b^2-2ab$

$\rightarrow a^2+b^2-2ab = (a-b)(a-b) = (a-b)^2$

why no asymtote here?

B4)



$\lim_{x\to -2^-} = \infty$ $\lim_{x\to -2^+} = -\infty$ $\lim_{x\to 2} = DNE$

C4) $\lim_{x\to -\infty} = \frac{10}{7}$ $\lim_{x\to \infty} = \frac{10}{7}$ hzasym $= y = \frac{10}{7}$

C8) $\lim_{x\to -\infty} = \infty$ $\lim_{x\to \infty} = \infty$ hzasym $= y = 7x$? $7x^2$? doesn't quite work either...