11/2 Precalc Exam 2

avg 75

135 | 5

120 | 3

105 | 6

3

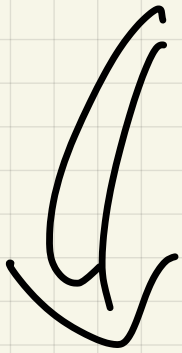
#3

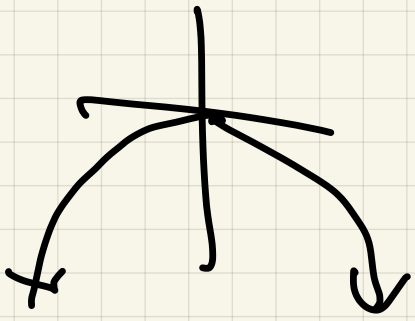
$f(x) = -(x+3)^1 x^2 (x-6)^3$

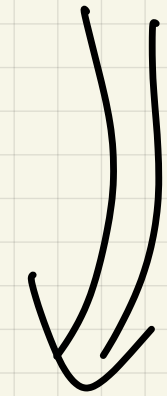
Long term $y = -x^6$

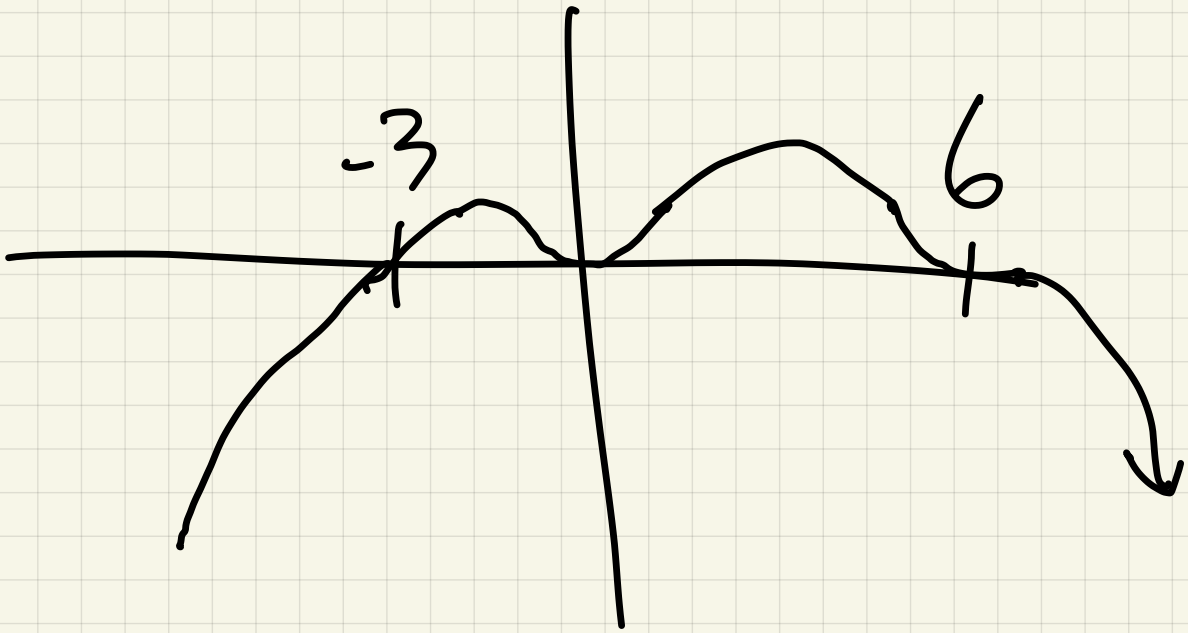
(b)

zero	mult
-3	1
0	2
6	3 ←

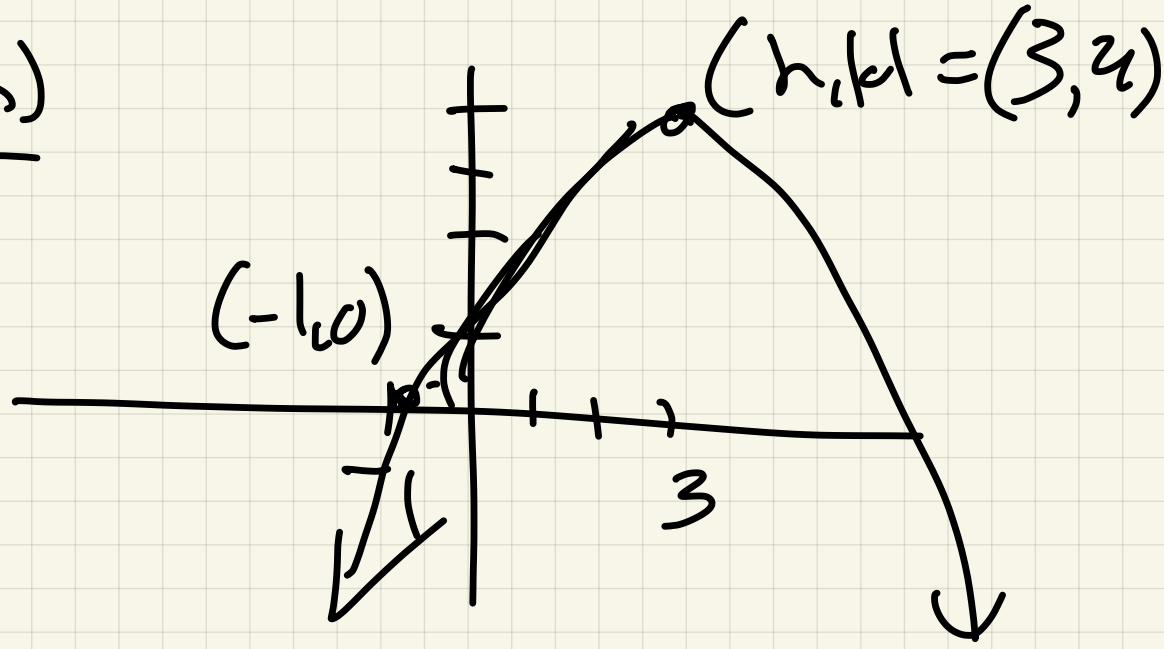








#4(b)



$y = a(x-3)^2 + 4$

$0 = a(-1-3)^2 + 4$

$0 = a \cdot 16 + 4$

$-4 = 16a$

$\frac{-4}{16} = a$

$-\frac{1}{4} = a$

(b)

$y = -\frac{1}{4}(x-3)^2 + 4$

#5 b $y = f(x) = (x-2)^3 + 8$

eqn $x = (y-2)^3 + 8$

$x - 8 = (y-2)^3$

$$\sqrt[3]{x-8} = y-2$$

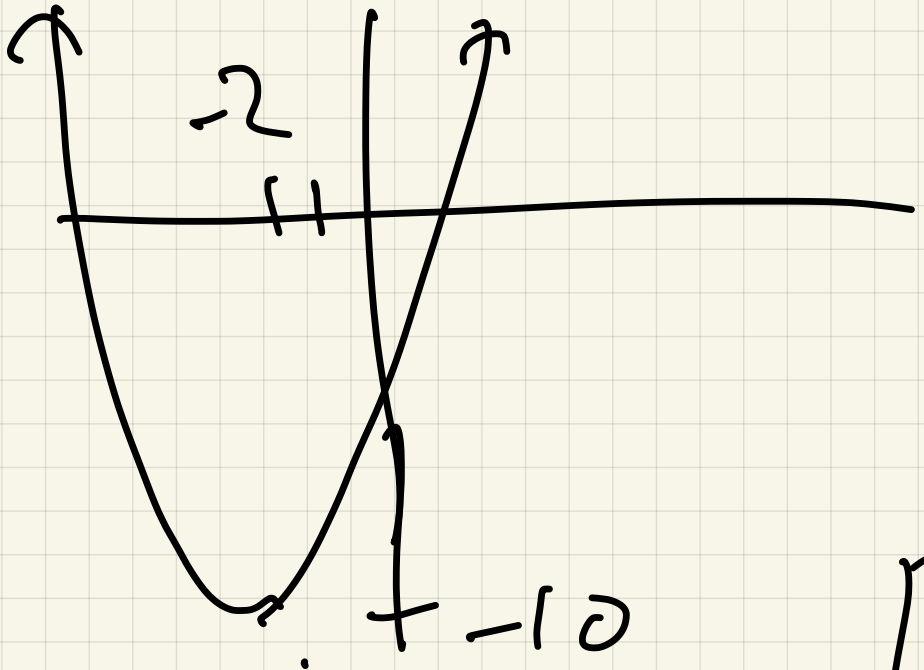
$$2+\sqrt[3]{x-8} = y$$

#6e $y = 2x^2+8x-2$

$= 2(x^2+4x+4) -2-8$

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

$2((x+2)^2 - 10$



Last time §2.1

Find VA/HA holes

§7.2 Sketch ??

Ex] $y = \dfrac{3x^2 - 3x}{x^2 - 1} = \dfrac{3x(x-1)}{(x-1)(x+1)}$

$\dfrac{3x}{x+1}$, $x \neq 1$

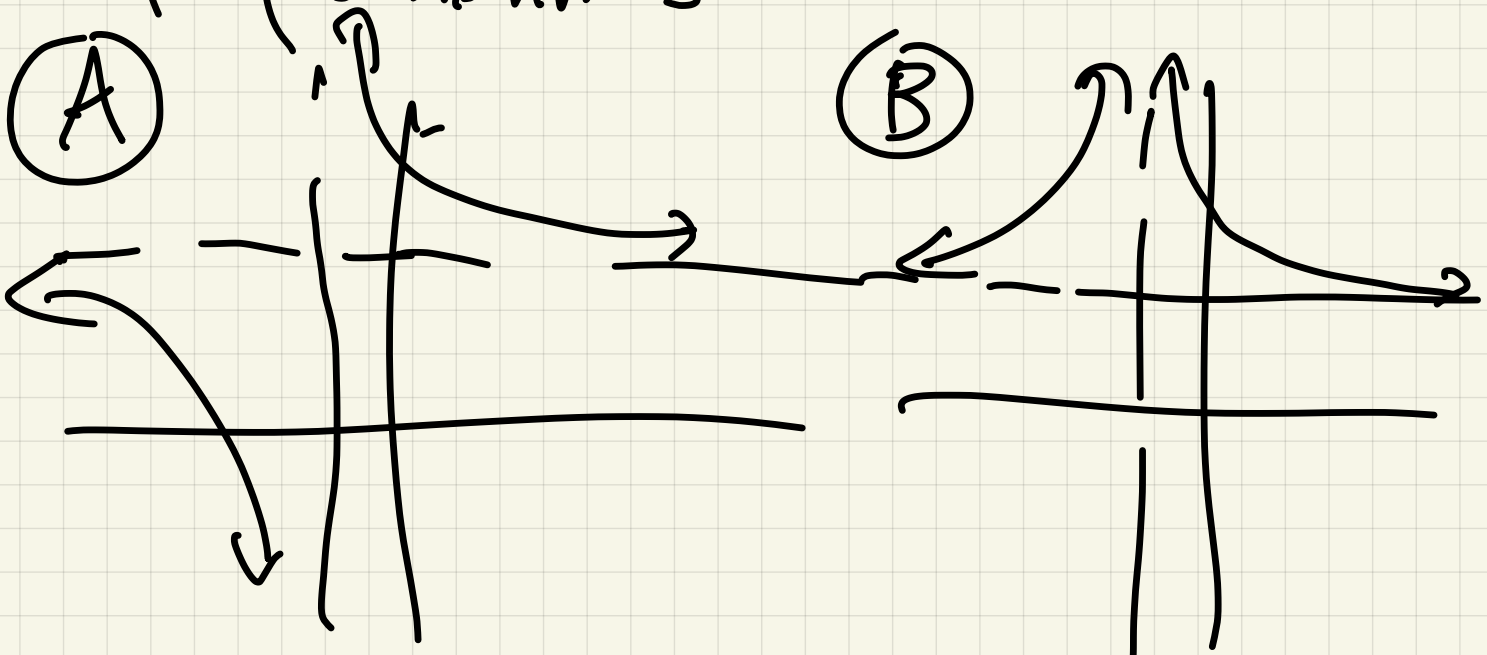
hole at $x = 1$

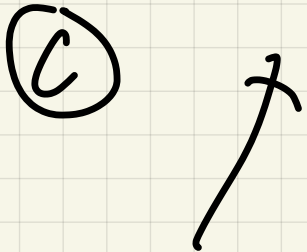
HA $y = 3$

VA $x = -1$

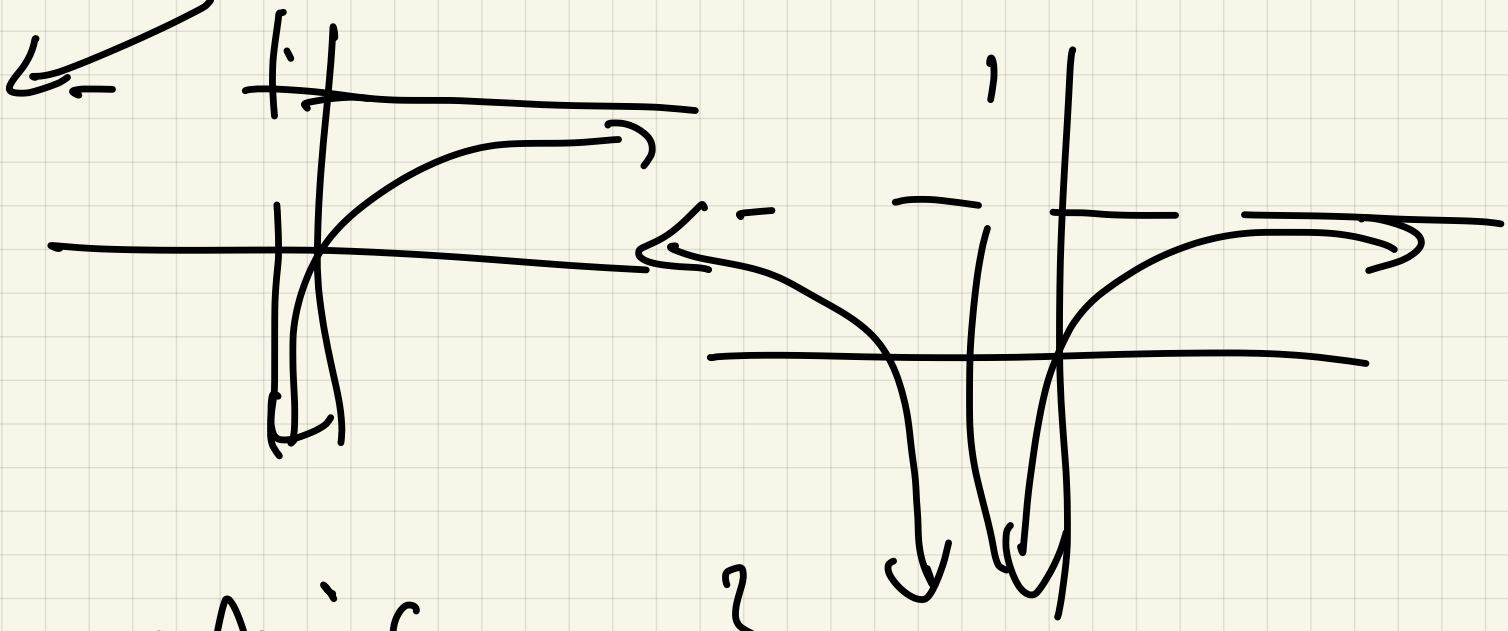
How does this play out

y possibilities









Which one?

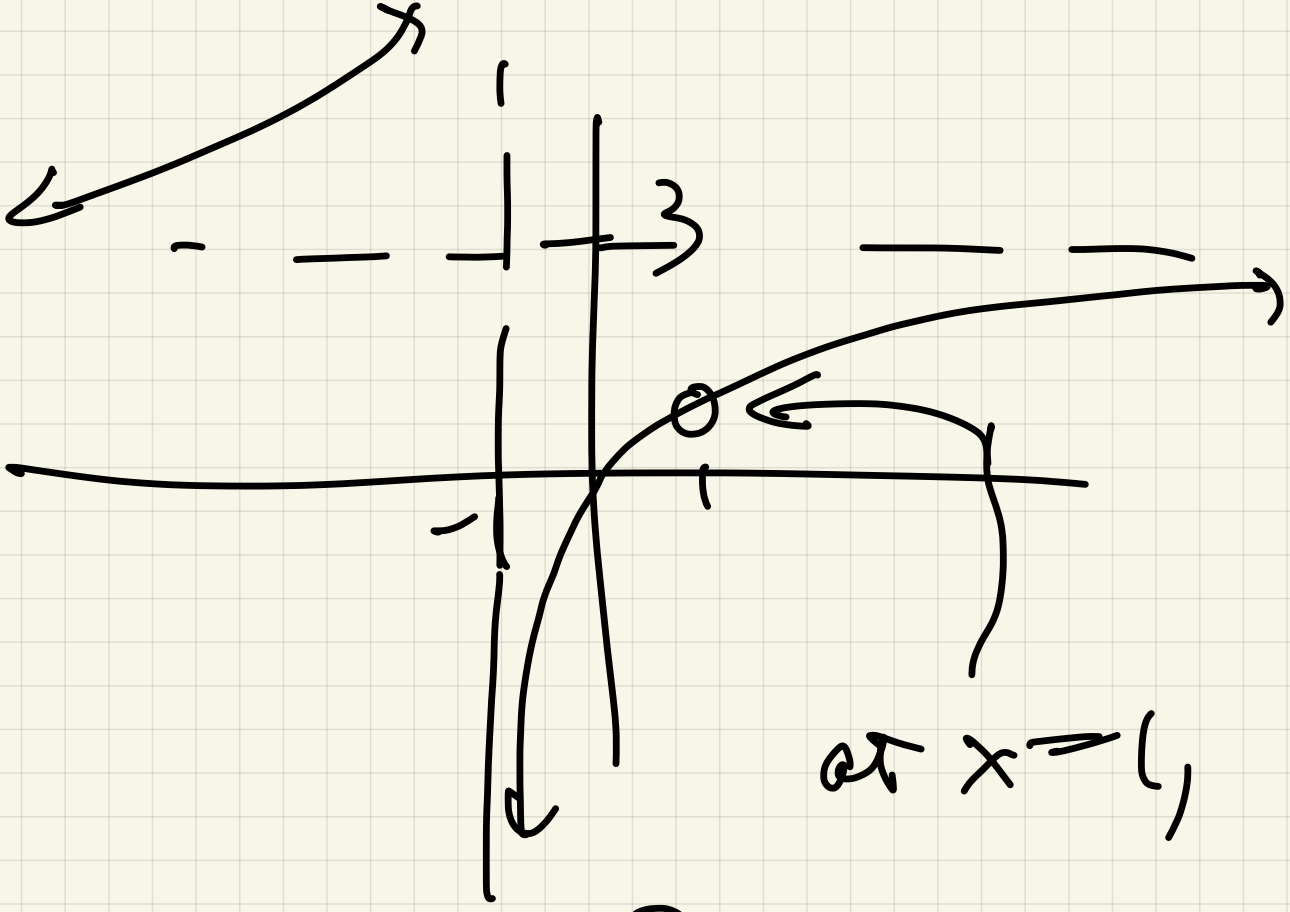
~~Use test~~ Use number line

$3x$ ← $= 0$ at $x = 0$

$x+1$ ← $= 0$ at $x = -1$

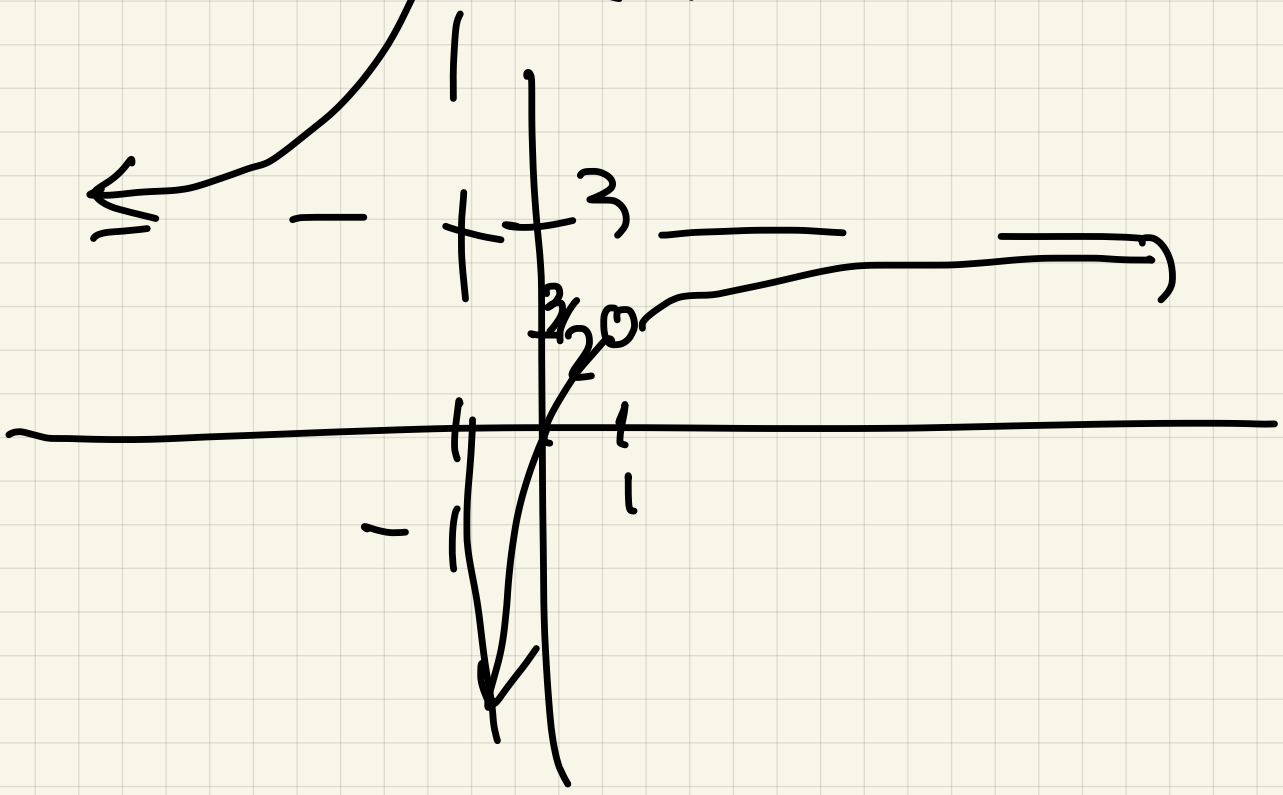
$+ \quad -1 \quad - \quad 0 \quad +$

This watch ©



$$y = \frac{3x}{x+1} \to \frac{3}{2} =$$

$(1, 3/2)$



Ex2 $y = h(x) = \dfrac{x(x^2-5x+4)}{x(x^2-4)} =$

$\dfrac{x^2-5x+4}{x^2-4}$

$x \neq 0$ hole

$\dfrac{(x-1)(x-4)}{(x-2)(x+2)}$

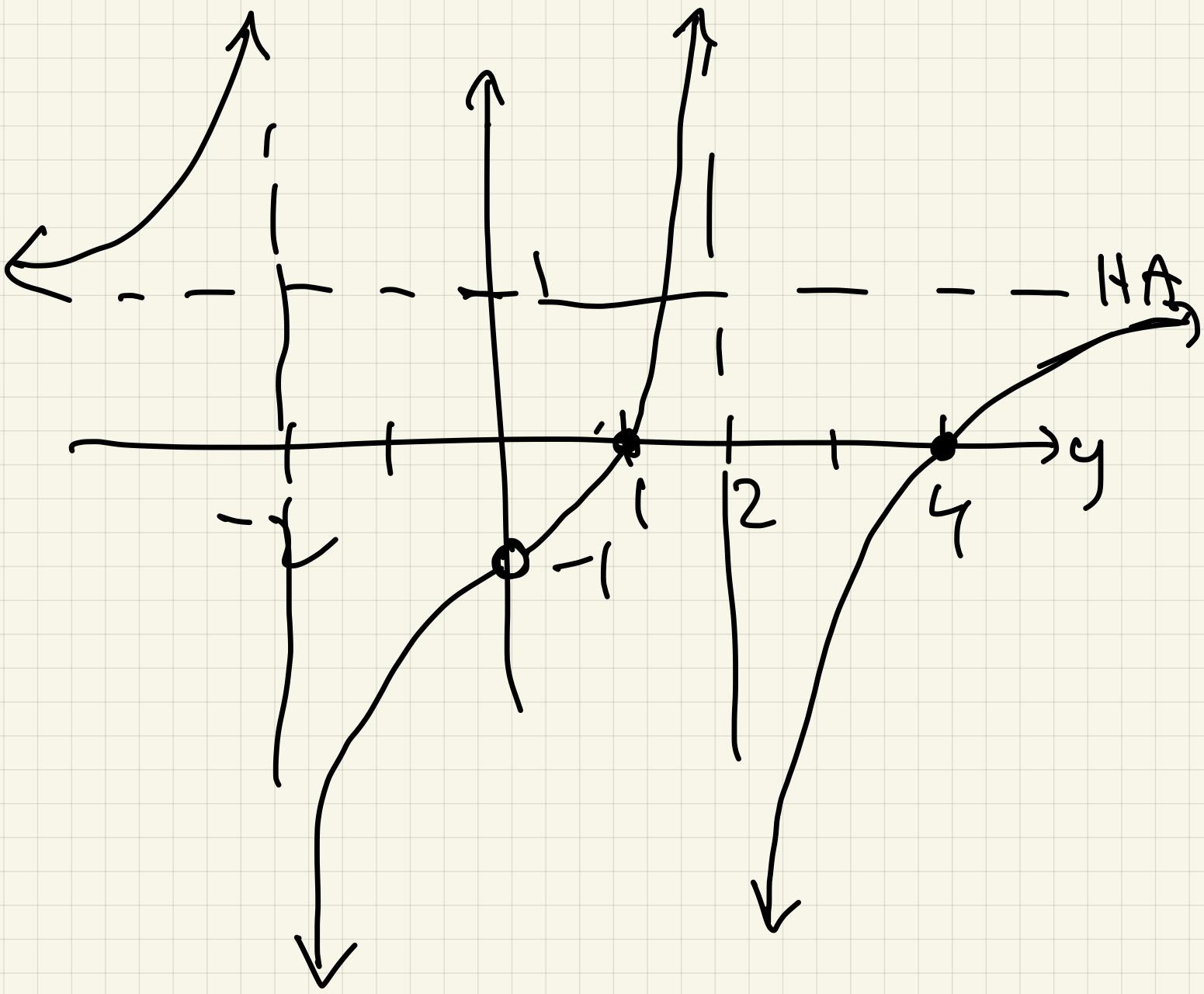
change of sign at $x = 1, 4, 2, -2$

$+ \; -2 \; - \; 1 \; + \; 2 \; - \; 4 \; +$

VA $x = \pm 2$

HA $y = 1$

hole $(0, -1)$



5.1 Exponential / Log functions

Def

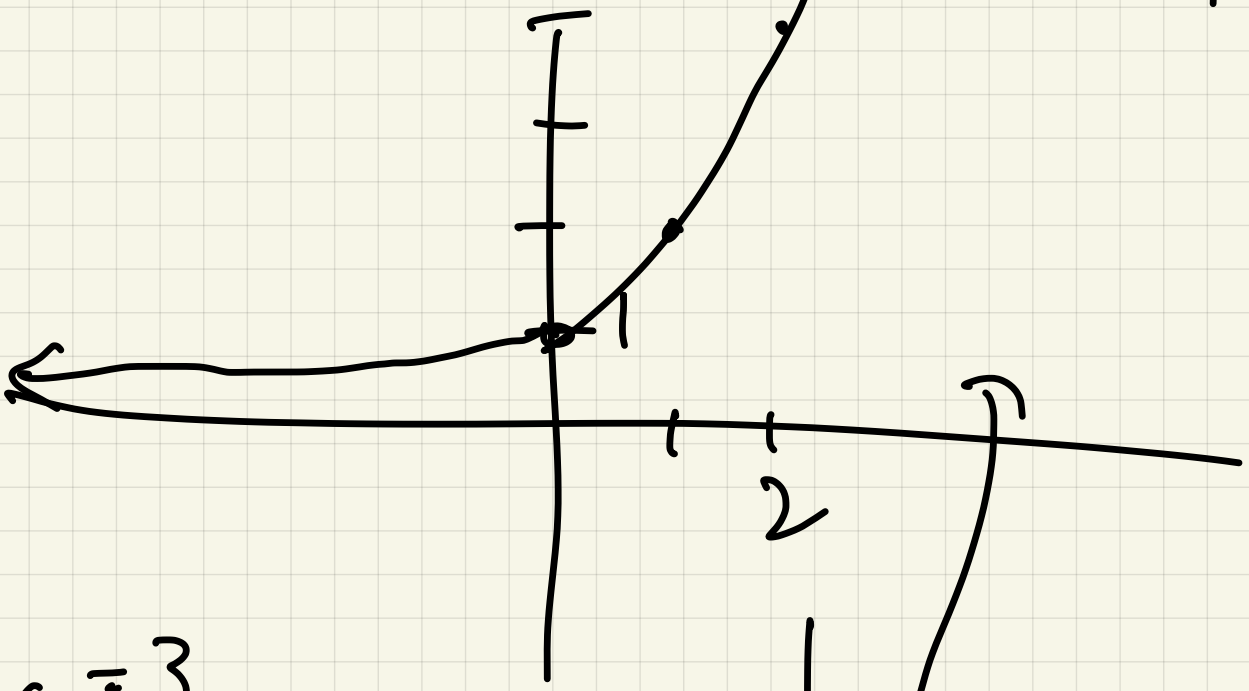
Exponential function with base a is

$$f(x) = a^x$$

where $a > 0$, $a \neq 1$

Ex 1 $a = 2$ $f(x) = 2^x$

x	0	1	2	3	4	-1	-2
2^x	1	2	4	8	16	$\frac{1}{2}$	$\frac{1}{4}$

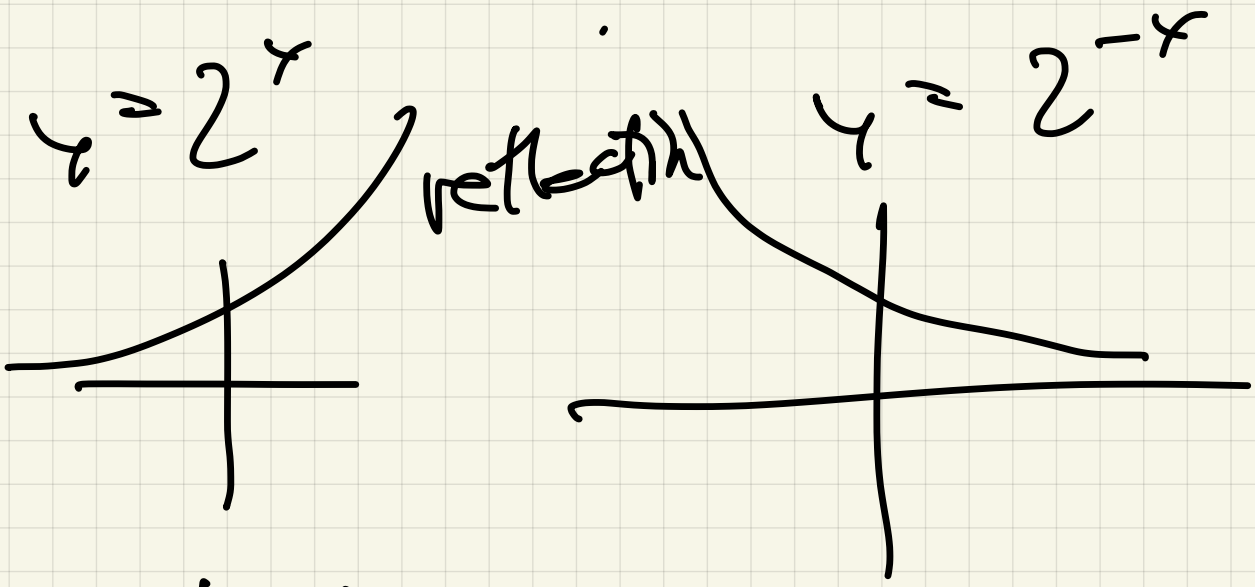


$a = 3$



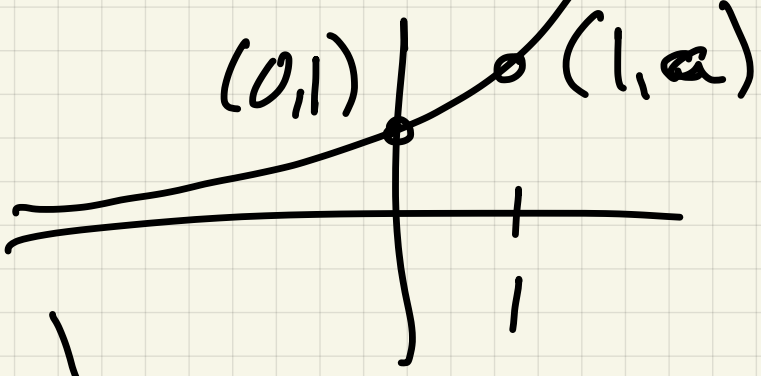
$a = \frac{1}{2}$ $f(x) = \left(\frac{1}{2}\right)^x = \left(2^{-1}\right)^x =$

2^{-x}



Conclusion: $0 < a \neq 1$

① $a > 1$

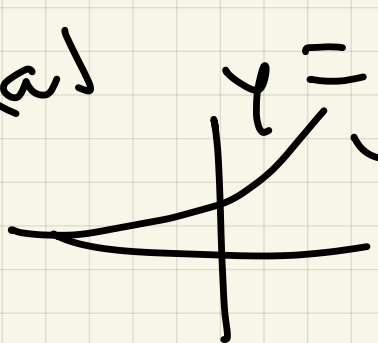


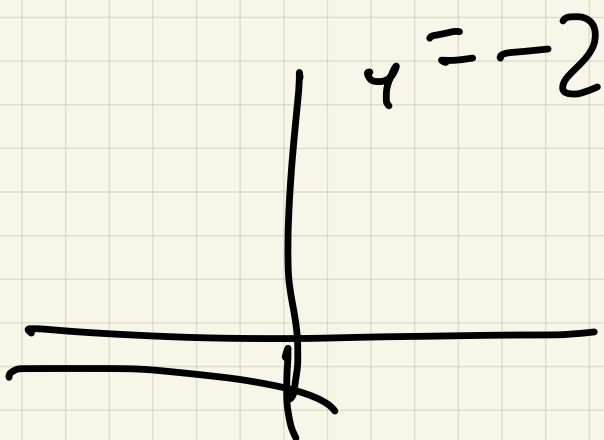
② $0 < a < 1$



Ex2 **Sketch**

(a) $y = -2^x$





(h) $y = 3 + 2^{(x+4)}$

