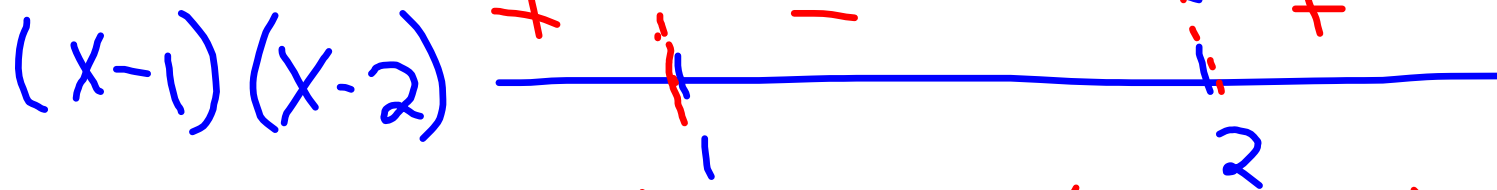
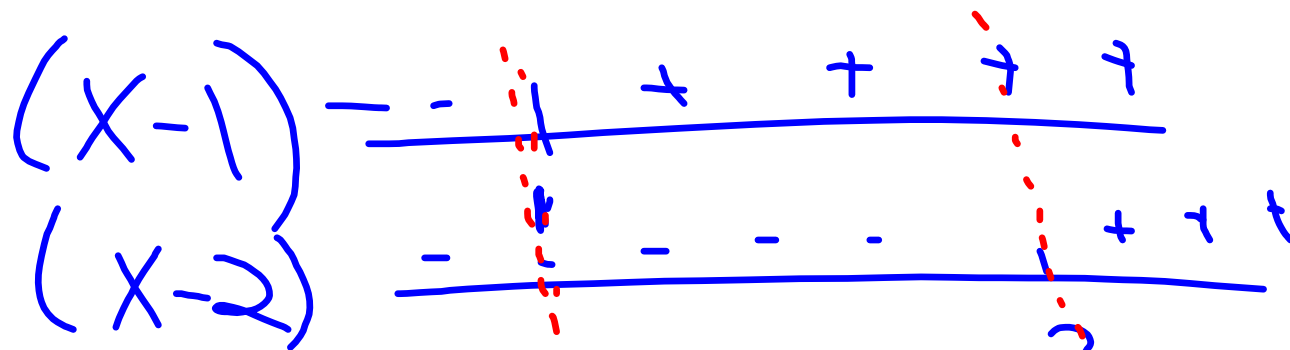


Append A

#25

$$(x-1)(x-2) > 0$$

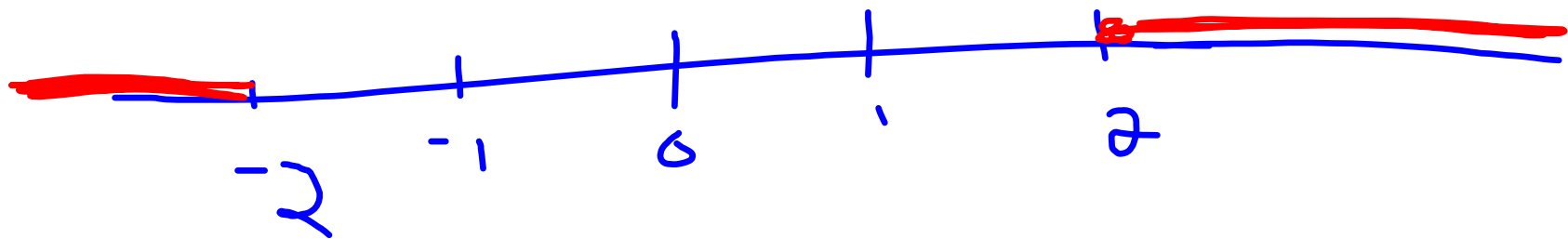


Ans: $(-\infty, 1) \cup (2, \infty)$

$$|x+5| \geq 2$$

Side thought

$$|x| \geq 2$$



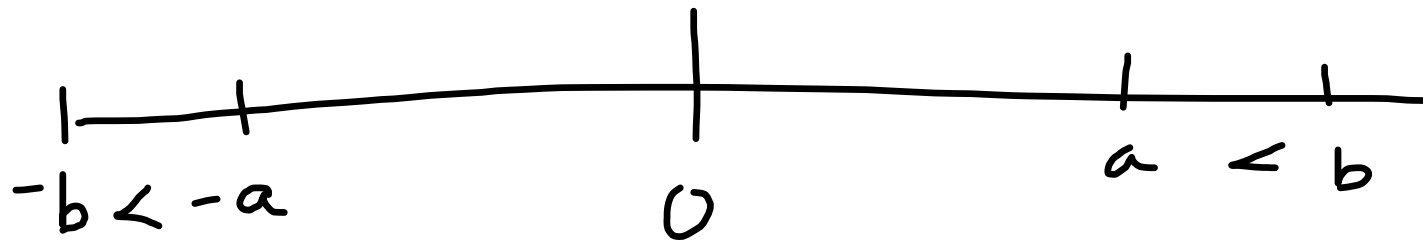
$$x \leq -2 \quad \text{or} \quad x \geq 2$$

So $|x+5| \geq 2$ means

$$x+5 \leq -2 \quad \text{or} \quad x+5 \geq 2$$

$$x \leq -7 \quad \text{or} \quad x \geq -3$$

ans: $(-\infty, -7] \quad \text{or} \quad [-3, \infty)$



1.1

#22.

$$f(x) = \frac{x}{x+1}$$

$$f(2+h) = \frac{2+h}{2+h+1} = \frac{2+h}{3+h}$$

$$f(x+h) = \frac{x+h}{x+h+1}$$

$$\frac{f(x+h) - f(x)}{h} = \frac{\frac{x+h}{x+h+1} - \frac{x}{x+1}}{h}$$

Now simplify . . .

$$\frac{\frac{x+h}{x+h+1} - \frac{x}{x+1}}{h} = \frac{\frac{(x+h)(x+1)}{(x+h+1)(x+1)} - \frac{x(x+h+1)}{(x+h+1)(x+1)}}{h}$$

$$\frac{(x+h)(x+1) - x(x+h+1)}{(x+h+1)(x+1)} \cdot \frac{1}{h}$$

$$\frac{x^2 + hx + h + x - [x^2 + xh + x]}{(x+h+1)(x+1) \cdot h}$$

$$= \frac{\cancel{h}}{(x+h+1)(x+1) \cdot \cancel{h}} = \frac{1}{(x+h+1)(x+1)}$$

eg # 24

$$f(x) = \frac{5x + 4}{x^2 + 3x + 2}$$

Domain is either given explicitly, i.e. "for $x \geq 5$ " or implicitly, mean it is everything that is 'legal' to plug into the function

ie no 0 in denom
no ^{even} $\sqrt{\text{neg}}$, no undef trig funts
etc.

here, can't have

$$x^2 + 3x + 2 = 0$$

$$\text{so } (x+2)(x+1) = 0$$

so can't have $x = -2$ or $x = -1$

Domain is $x \neq -1, -2$

or $(-\infty, -1) \cup (-1, -2) \cup (-2, \infty)$

$$x \in \mathbb{R} - \{-1, -2\}$$

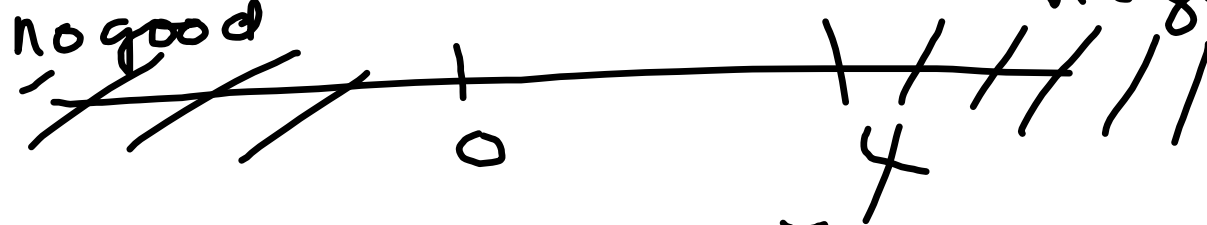
eg #26

$$f(u) = \sqrt{u} - \sqrt{4-u}$$

cant have $u < 0$

cant have $u > 4$

no good



Domain $[0, 4]$

32

$$H(t) = \frac{4-t^2}{2-t}$$

Domain (implicit in way function
is written)

is $t \neq 2$

$$\text{Note } \frac{4-t^2}{2-t} = \frac{(2+t)(\cancel{2-t})}{\cancel{2-t}} = 2+t$$

We could write

$$H(t) = 2+t, \text{ with } t \neq 2$$

