MATH 115 **Name:** _____

In class work 1, Fall 2022 **Row and Seat:** _____

In class work 1 has questions 1 through 3 with a total of 15 points. Digitize your work and submit it to Canvas. This assignment is due *Wednesday 24 at 13:15* P M.

5 1. Find the *natural domain* of the function F whose formula is $F(x) = \frac{1}{5+\frac{1}{x}}$

Solution: There are two denominators; we need to require that both are nonzero; thus in implicit form, the domain is

$$\text{dom}(F) = \left\{ x | (x \neq 0) \wedge (5 + \frac{1}{x} \neq 0) \right\}$$

Solving each inequation for x gives and explicit form; it Is

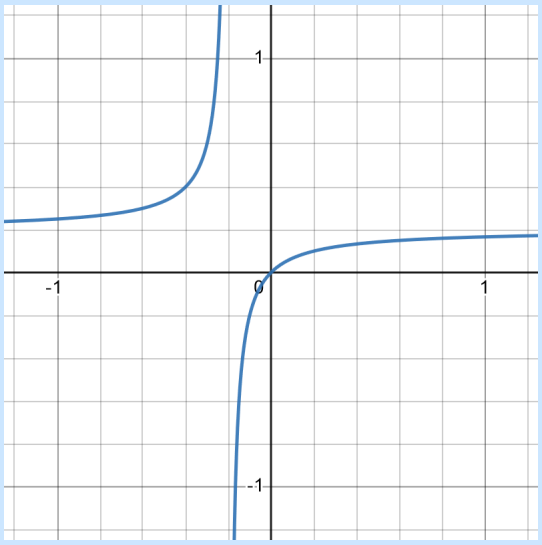
$$\text{dom}(F) = \left\{ x | (x \neq 0) \wedge (x \neq -\frac{1}{5}) \right\}$$

In interval notation, this Is

$$\text{dom}(F) = (-\infty, -\frac{1}{5}) \cup (-\frac{1}{5}, 0) \cup (0, \infty).$$

5 2. Use desmos to graph $y = \frac{1}{5+\frac{1}{x}}$. As best you can, reproduce the graph here. Also, use the graph to determine range(F). Be careful! Is one in the range?

Solution:



5 3. Define functions $F(x) = \frac{1}{x-1}$ and $G(x) = \sqrt{x-1}$. Fill in the chart:

Function	Formula	domain
$F+G$		
$\frac{F}{G}$		
$F \circ G$		
$G \circ F$		

Show all of your work below: (You might like to use Desmos to help.)