MATH 115 **Name:** _____

In class work 2, Fall 2022 **Row and Seat**: _____

In class work 2 has questions 1 through 3 with a total of 15 points. Turn in your work at the end of class *on paper*. This assignment is due *Wednesday 31 August at 13:15* PM.

[5] 1. After graduation, suppose your starting salary is $46,000. Further, suppose that you expect to earn a 4.1% pay rise each year you work. What is your salary for your 40^{th} year of work? **Hint:** Your salary for your 3^{rd} year of work is $\$46,000 \times 1.041^2$.

[5] 2. Let $Q(x) = \frac{6}{1+\exp(-x)}$. As best you can, reproduce the graph here. Using the graph, find range(Q). Be careful: Is zero in the range? What is the solution set to $0 = \frac{6}{1+\exp(-x)}$? Is six in the range? What is the solution set to $6 = \frac{6}{1+\exp(-x)}$?

5 3. Define $Q(x) = (x-1)^2 + 1$ and $\text{dom}(Q) = [1, \infty)$. Find the formula and the domain of Q^{-1}. Use desmos to graph both Q and Q^{-1}. As best you can, reproduce your graphs here.