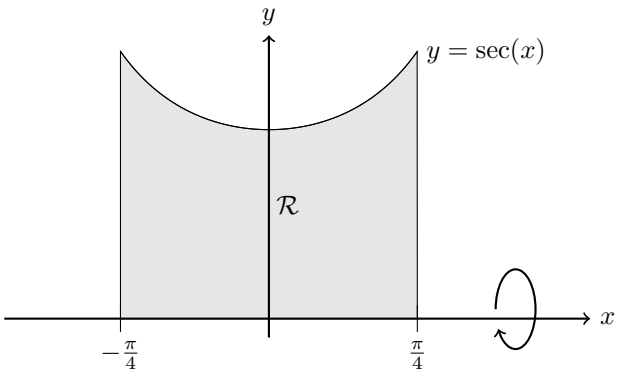
Name: _____ Sort #: _____

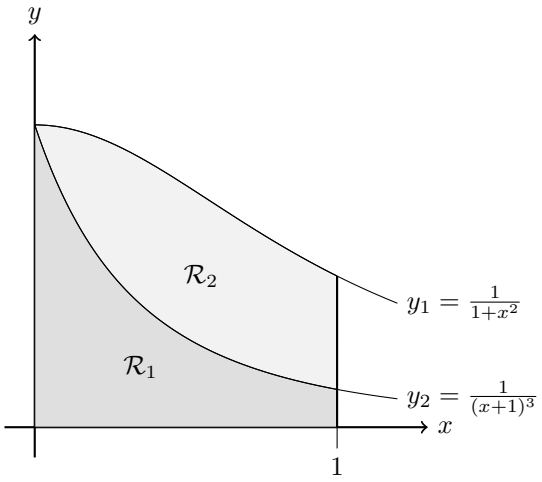
Written Homework 2

MATH 2205: Calculus II, Fall 2018 Page ____ of ____

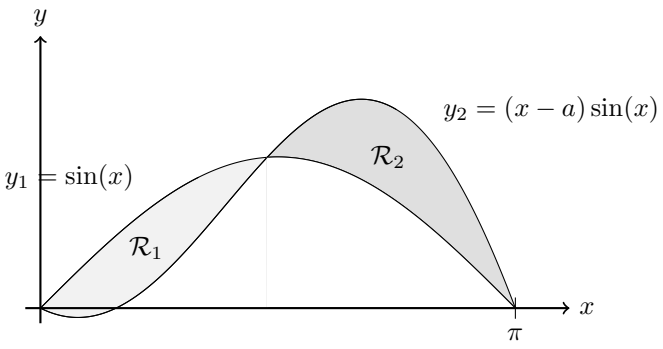
Problem 1: Consider the region $\mathcal{R}$ as given in the diagram. Compute the volume of the solid obtained by revolving $\mathcal{R}$ about the x-axis.



Problem 2: Which of the shaded regions $\mathcal{R}_1$ or $\mathcal{R}_2$ has the larger area? The upper curve is $y_1 = \dfrac{1}{1+x^2}$, the lower curve is $y_2 = \dfrac{1}{(x+1)^3}$, and both regions go from $x = 0$ to $x = 1$.



Problem 3: Find the value of the parameter a between 0 and 2 for which the areas of the regions $\mathcal{R}_1$ and $\mathcal{R}_2$ are equal. The two curves involved are $y_1 = \sin(x)$ and $y_2 = (x - a)\sin(x)$.



Problem 4: Find the range of values of the parameter $a > 0$ for which the volume of the solid generated by revolving the gray region $\mathcal{R}$ about the x-axis is between $\dfrac{\pi}{15}$ and 15π.