Quiz 6	Name:	
MATH 241 (Spring 2023)		
03/30/2023	Section:	

Instructions: You need to show all your work. There will be no credits to answers without any explanation.

**Problem 1.** (5 points) Let *R* be the rectangular region bounded by the lines x = -1, x = 2, y = 0, and y = 2. Find  $\iint_R 4xy \, dA$ .

Solution.

$$\iint_{R} 4xy \ dA = \int_{0}^{2} \int_{-1}^{2} 4xy \ dx \ dy = \int_{0}^{2} 2x^{2}y \Big|_{-1}^{2} \ dy = 3 \int_{0}^{2} 2y \ dy = 3(y^{2}) \Big|_{0}^{2} = \boxed{12}$$

**Problem 2.** (5 points) Set up (do not need to evaluate) the double integral  $\iint (x - 3y) dA$  where *R* is the region in the first quadrant enclosed by the circle  $x^2 + y^2 = 16$  and the lines y = x and y = -x.

Solution.

