

KFUPM      SEM II (Term 042)    Name: \_\_\_\_\_    Serial #: \_\_\_\_\_

MATH 102-15    Quiz # 3                    ID: #: \_\_\_\_\_

(5-points each) Set up integrals that can be used to find each of the following area and volumes. DO NOT EVALUATE THE INTEGRAL.

1. The area of the region enclosed by the parabola  $x = -y^2$  and the line  $y = x + 6$ .

2. The volume of the solid generated by revolving the region bounded by  $y = x^3$ ,  $y = -x$ , and  $y = 1$  about the vertical line  $x = 5$ .    [Hint: Use Washers]

3. The volume of the solid generated by revolving the region given in Problem 2 about the horizontal line  $y = -1$ . [Hint: Use cylindrical shells]

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(5-points each) Set up integrals that can be used to find each of the following area and volumes. DO NOT EVALUATE THE INTEGRAL.

1. The area of the region enclosed by the parabola  $y = -x^2$  and the line  $y = x - 6$ .

2. The volume of the solid generated by revolving the region bounded by  $y = -x^3$ ,  $y = x$ , and  $y = 1$  about the vertical line  $x = 3$ .    [Hint: Use Washers]

3. The volume of the solid generated by revolving the region given in Problem 2 about the horizontal line  $y = -4$ . [Hint: Use cylindrical shells]