This quiz has 5 questions of equal value; 4 correct answers is a full score.

1. Find the area between the curve $y = -(x + 4)^2$ and the x-axis for x between 2 and 5.

2. Find the area of the region bounded by the curve $y = (x - 3)^2$ and line $y = x - 3$.

3. Find the area bounded by the curve $y = \ln x^2$, the y-axis, and the lines $y = 2$ and $y = 6$.

4. Find the volume of the solid of revolution obtained by revolving the region between the curves $y = 2\sqrt{x}$ and $y = x$ around the x-axis.

5. Find the volume of a solid whose base is a circle of radius 3 and the cross-sections perpendicuar to the base are squares.

Homework: Find the volume of a solid cone whose base has area A, and whose vertex is distance h away from the plane of the base. Express your answer in terms of A and h. Justify all steps.

Extra Credit: The axes of two right circular cylinders of radius a intersect at a right angle. Find the volume of the solid of intersection of the cylinders. Justify all steps.

Submit extra credit separately from homework.