MATH 211: 9-8 WORKSHEET

(1) Derive the formula for the volume of a cone with height h and base radius r using both the method of rotation (from section 2.2) and the method of cylindrical shells (from section 2.3).

(2) Consider the shape bounded by the x-axis and the parabola $y = x^2 - 4x$. Rotate this shape around the line $x = 5$ to produce a bundt cake-like shape. What is the volume of this bundt cake? [Hint: Because you aren't rotating around the y-axis, the distance from the axis of rotation at x-coordinate x isn't just x. What is it?]