Homework 11

1. Let *R* be the region bounded by $y = 4 - x^2$ and $y = 0$. Find the volume of the solids obtained by revolving *R* about each of the following:(a) the *y*-axis, (b) the line $y = -3$,(c) the line $y = 7$ and (d) the line $x = 3$.

2. Use the shell method to write and evaluate the definite integral that represents the volume of the solid generated by revolving the plane region about the -axis.

(a) $y = x^2, y = 4x - x^2$

(b) $y = \sqrt{2x - 5}\,,\ y = 0\,,\ x = 4$

3. Find the arc length of the graph of the function over the indicated interval.

(a) $y = \frac{3}{2}x^{\frac{2}{3}} + 4,\ \ [1,27]$

(b) $x = \frac{1}{3}(y^2 + 2)^{\frac{3}{2}}\,,\ 0 \le y \le 4$