# Assignment 7

Coverage: 15.8 in Text.

Exercises: 15.8. No 1,3, 5, 7, 9, 12, 14, 15, 16, 19, 20, 25.

Submit no. 7, 12, 16 and 20 by Nov 2.

### Supplementary Problems

1. The rotation by an angle $\theta$ in anticlockwise direction is given by $(x, y) = (\cos\theta\ u - \sin\theta\ v, \sin\theta\ u + \cos\theta\ v)$. Verify that rotation leaves the area unchanged.

2. Let $D$ be the region bounded by four lines $y = ax + b_1, y = ax + b_2, y = cx + d_1, y = cx + d_2$ where you may assume $c > a > 0, b_1 < b_2$ and $d_1 < d_2$. Show the area of $D$ is given by $(b_2 - b_1)(d_2 - d_1)/(c - a)$.