1. Find the area of the shaded region:

$r = \sqrt{\theta}$

$r = 1 + \cos\theta$

$r = 4 + 3\sin\theta$

$r = \sin 2\theta$
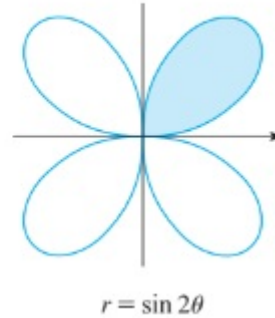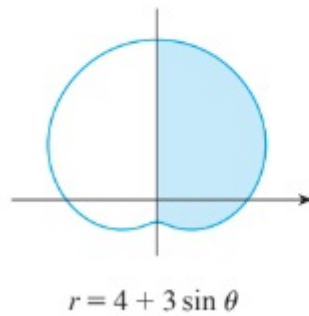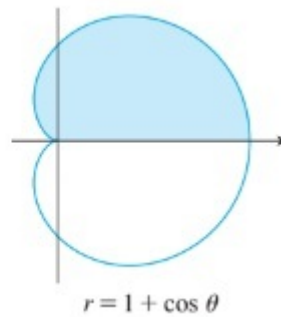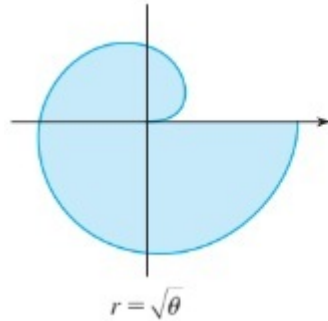
2. Find the area of the region that lies inside $r = 2\cos\theta$ and outside $r = 1$.

3. Find the areas of the region
   A. shared by the circles $r = \cos 2\theta$ and $r = 2\sin\theta$
   B. shared by the circles $r = 2$ and the cardioid $r = 2(1 - \cos\theta)$

4. Find the length of the polar curve
   A. The spiral $r = \theta^2, 0 \le \theta \le \sqrt{5}$
   B. the cardiod $r = 1 + \cos\theta$

5. Find all points of intersection of the given curves.
   A. $r = 1 + \sin\theta^2, r = 3\sin\theta$
   B. $r = 1 - \cos\theta, r = 1 + \sin\theta$ C. $r = 2\sin 2\theta, r = 1$