Area in Polar Coordinates

1. Graph the polar curve \( r = 2 \cos \theta - 2 \). At what values of \( \theta \) do \( r = 2 \cos \theta - 2 \) and the circle \( r = 6 \cos \theta \) intersect?

2. Find the area that is inside \( r = 4 \cos \theta \) and is in the first quadrant.

3. Find the area inside the inner loop of \( r = 1 + 2 \sin \theta \).

4. Find the area inside the limacon \( r = 3 + 2 \sin \theta \) and outside the circle \( r = 2 \).

5. Find the area inside both the cardioid \( r = 3 + 2 \sin \theta \) and the circle \( r = 2 \).