**Use double integration in polar coordinates to find the volume of the solid that lies below the given surface and above the plane region R bounded by the given curve.**

1.

**Evaluate the given integral by first converting to polar coordinates.**

2.

**Solve by double integration in polar coordinates.**

3. Find the volume of the solid bounded by the paraboloids

**Find the centroid of the plane region bounded by the given curves. Assume that the density is for each region.**

4.

**Find the mass and centroid of the plane lamina with the indicated shape and**

**density.**

5. The region bounded by for