

### Calculating the Number of Flowers Needed for a Sphere

Determining the number of flowers needed for a given size sphere is a little simpler than you might think.

With a ruler, measure the radius of the sphere (that would be half of the diameter). For this example, let's assume that the radius of the sphere is 2.25 inches.

Measure the depth of the flower (for example, measure a rose from the top of the corolla to the base of the calyx). In our example, the distance is 1.5 inches. Combined, we have a total radius of 3.75 inches.

The equation is  $4 \pi r^2$ , so that's 4 times pi times r squared. For our purposes, pi equals 3.14, so calculate  $4 \times 3.14 \times r^2$ . In this calculation,  $r = 3.75$ . The final formula is:  $4 \times 3.14 \times 3.75 \times 3.75 = 176.625$ . The surface area to be covered by roses is 176.625.

Next, you'll need to determine the surface area of a single flower with another equation,  $\pi r^2$ . The radius of the flower is  $\frac{1}{2}$  of the diameter of the face. In this variety of rose, the radius measured 1.25 inches. The final formula is  $3.14 \times 1.25 \times 1.25 = 4.906$ . The surface of the rose face is 4.906 square inches.

Now divide the orb surface (176.635) by the flower surface (4.906) and you have the total number of roses needed. In this case it takes 36 roses to cover this surface.

Calculating in advance will prevent you from having too many or not enough roses.