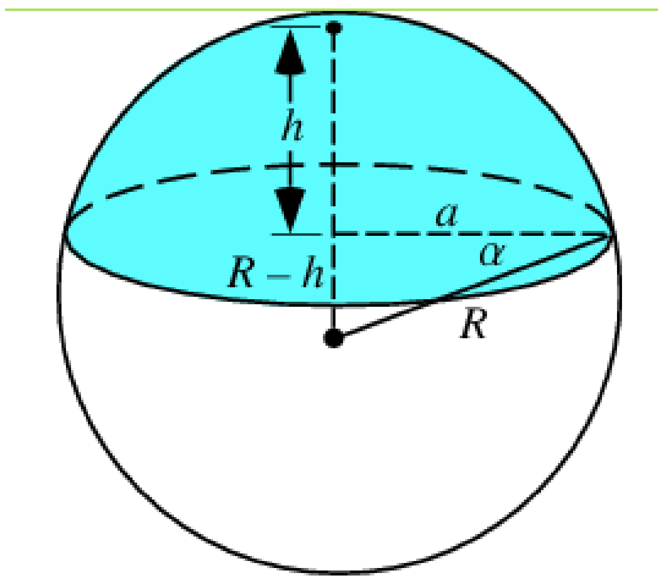

$$V_{cap} = \frac{1}{6}\pi h\left(3a^2 + h^2\right).$$

Using the Pythagorean theorem gives

$$(R-h)^2 + a^2 = R^2,$$

which can be solved for a^2 as

$$a^2 = 2Rh - h^2,$$

so the radius of the base circle is

$$a = \sqrt{h(2R-h)},$$

and plugging this in gives the equivalent formula

$$V_{cap} = \frac{1}{3}\pi h^2 (3R - h).$$

The surface area of the spherical cap is given by the same equation as for a general zone:

$$\begin{aligned} S_{cap} &= 2\pi R h \\ &= \pi\left(a^2 + h^2\right). \end{aligned}$$

h: altura do corte

VOLUME:

```
a = sqrt(h * (2 * R - h));
V = (1.0/6.0) * PI * h *(3 * a * a - h * h)
V = 1/3 * PI * h * h * (3 * R - h)
```

SURFACE AREA:

```
S = 2 * PI * R * h
S = PI * (a * a - h * h)
```

```
ld volSphericalCap(esfera E, ld h){
  return 1.0/3.0 * PI * h * h * (3 * E.r - h);
}

ld surfaceArea(esfera E, ld h){
  return 2 * PI * E.r * h;
}
```