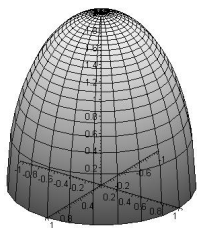
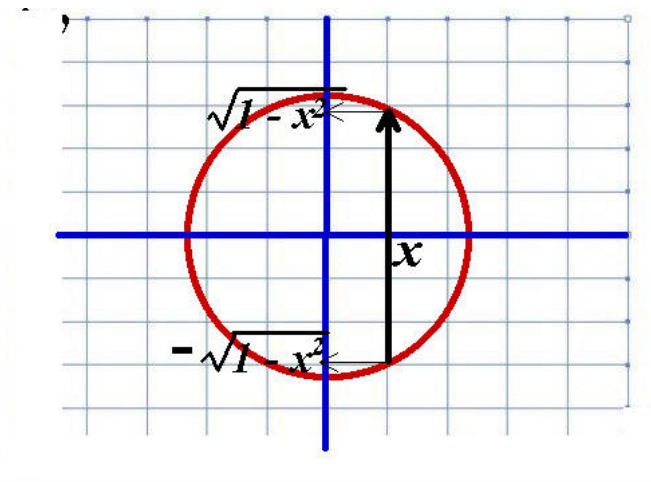


$$z = 2\sqrt{1 - x^2 - y^2}$$

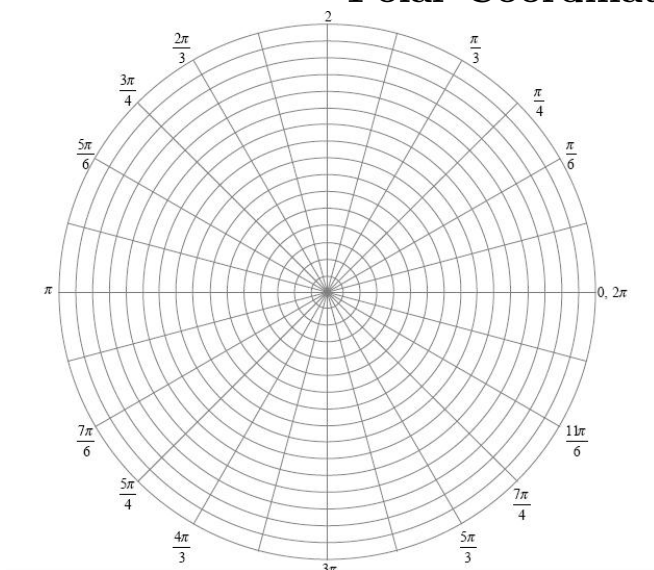


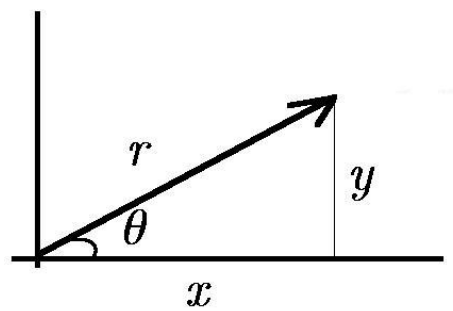
$$\text{Volume} = \int_{-1}^1 \int_{-\sqrt{1-x^2}}^{\sqrt{1-x^2}} 2\sqrt{1 - x^2 - y^2} \, dy \, dx$$

$$\text{Volume} = \int_{-1}^1 \int_{-\sqrt{1-x^2}}^{\sqrt{1-x^2}} 2\sqrt{1-x^2-y^2} \, dy \, dx$$



Polar Coordinates



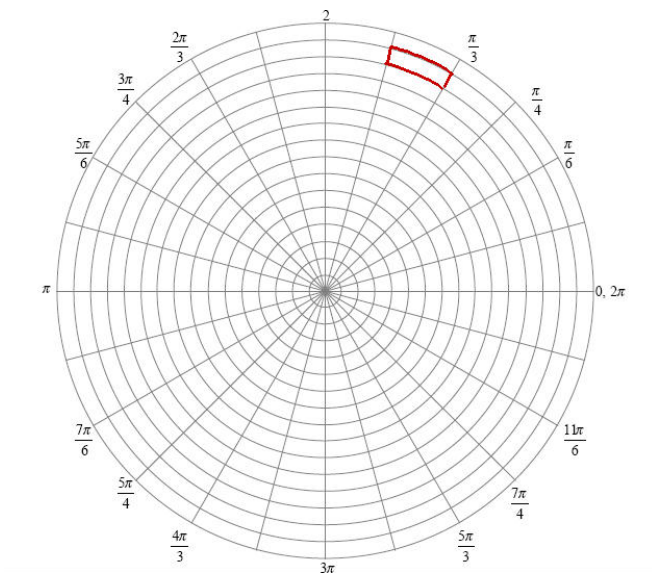


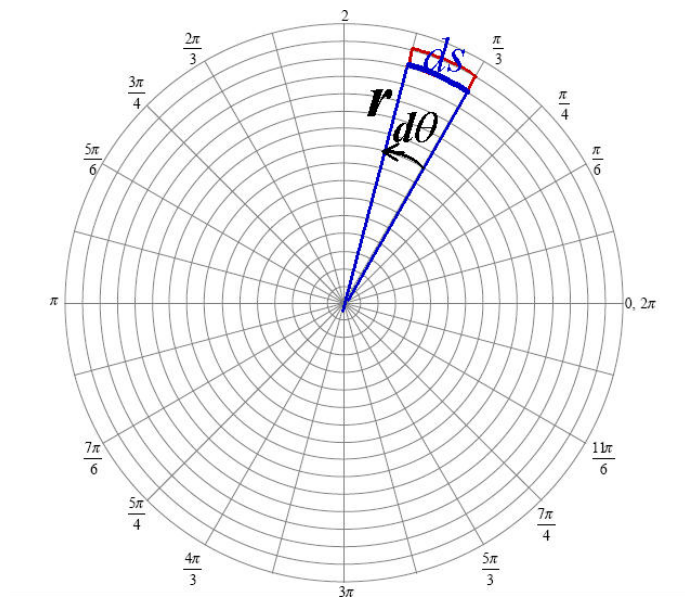
$$\cos \theta = \frac{x}{r}$$

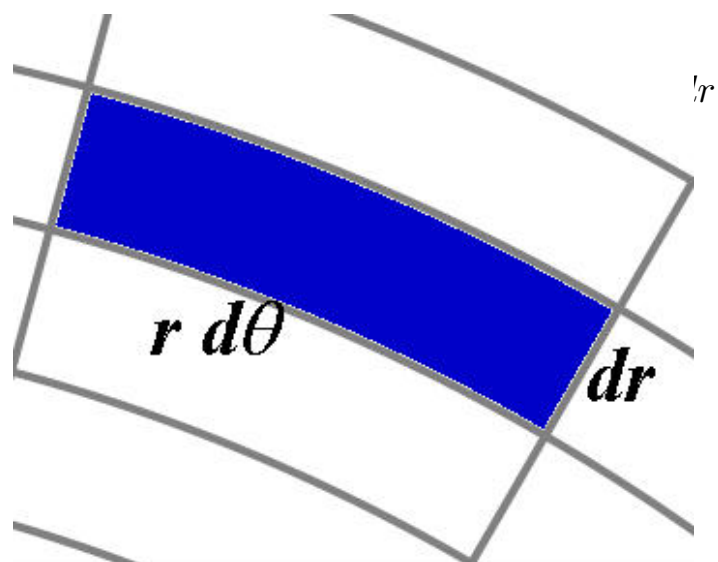
$$\sin \theta = \frac{y}{r}$$

$$x = r \cos \theta$$

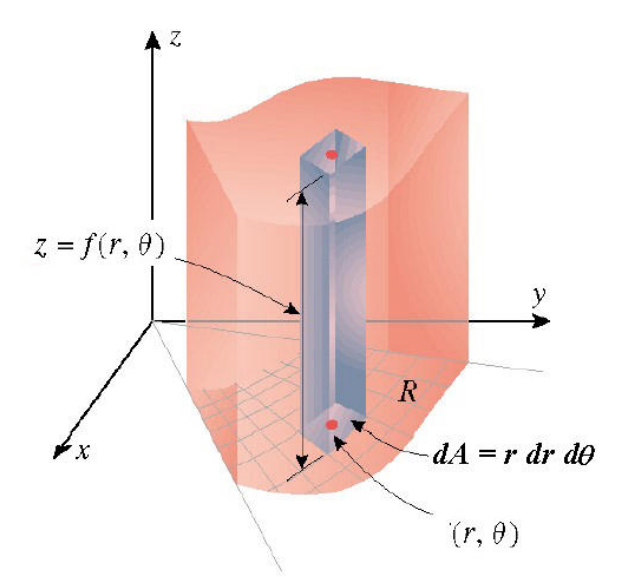
$$y = r \sin \theta$$



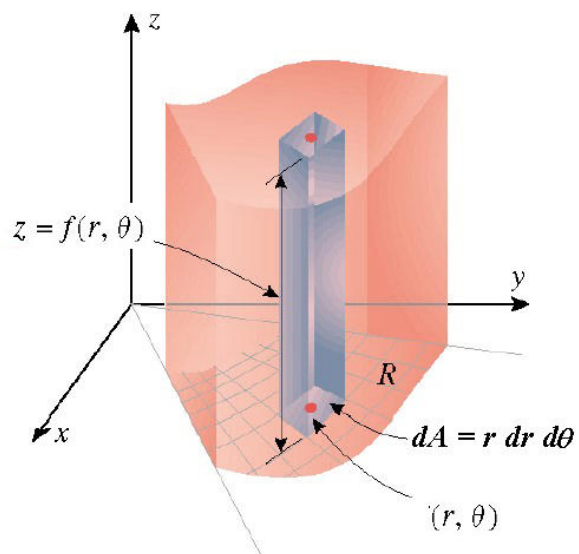




$$dV = f(r, \theta) dA = f(r, \theta) r dr d\theta$$



$$V = \iint_R f(r, \theta) r \, dr \, d\theta$$



$$V = \iint_R f(r, \theta) r \, d\theta \, dr$$

