Answer on Question #44226 – Physics – Other

how many radian are there in a steradian

Solution:

A steradian is $\left(\frac{180}{\pi}\right)^2$ square degrees or $\left(\frac{\pi}{\pi}\right)^2 = 1$ square radians. A steradian can be defined as the solid angle subtended at the center of a unit sphere by a unit area on its surface. Therefore one steradian corresponds to the plane (i.e. radian) angle of the cross-section of a simple cone subtending the plane angle θ

$$\theta = 2\arccos\left(1 - \frac{1}{2\pi}\right) \approx 1.144\ rad$$