A discussion on evaluation of volume of Ellipsoid by Monte-Carlo method

For evaluation of the volume of ellipsoid using Monte-Carlo method, we create a virtual space of the dimensions enclosing the ellipsoid. This is represented by a cuboid of dimensions 2a, 2b and 2c where a, b and c represent the semi-major axes of the ellipsoid. Plotting a large, randomly generated number of points(N), we obtain a fair number of points that lie within the boundary of the ellipsoid. A ratio of this number to the total number of generated points gives us a rough idea of the ratio of volume of the two bodies. Knowing the volume of the cuboid, the volume of the ellipsoid can be found. The plot shows volume values converging to analytical value with increasing N.