Answer on Question #53272 – Math - Geometry

Find the approximate number of solid spheres that can be made by melting a single cube whose side length is (7*2^0.5) cm.

Solution

Firstly, let's find the volume of the cube:

$$V_c = a^3 = (7\sqrt{2})^3\ cm^3 = 686\sqrt{2}\ cm^3$$

The volume of the sphere is

$V_s = \frac{4}{3}\pi r^3$,

where *r* is the length of radius of the sphere (in cm). So, the number of solid spheres is

$$\boldsymbol{N = \frac{V_c}{V_s} = \frac{1029}{\sqrt{2}\pi r^3}}$$

To find a value of N, we need to know *r* .