Answer on Question # 41066 – Math – Geometry

I have to figure out the volume of a composite figure to the nearest tenth. The figure is a right cylinder with diameter of 5mm and height of 8 mm, and there is a pyramid the same height inside of it with a square base. I came up with a volume of 50 pi or approximately 157.07 mm3 for the whole cylinder and approximately 33.23 mm3 for the pyramid, but since the pyramid takes up part of the volume of the cylinder, does the composite figure volume actually only equal the volume of the entire cylinder?

Solution.

You are right. The volume of the composite figure is the volume of the cylinder, because the pyramid is located inside of the cylinder and the entire volume of the pyramid is concentrated only in the cylinder.

The volume of the composite figure:

$$V = \frac{\pi d^2 h}{4} = \frac{\pi \cdot 25 \cdot 8}{4} = 50\pi \approx 157.1\ (\text{mm}^3)$$

Answer: the volume of the composite figure to the nearest tenth $V = 157.1\ \text{mm}^3$.