Answer on question #54423, Physics / Computational Physics

Question The length of each side of a cube measured with verier callipers is 30mm.If the venier callipers can be read with an uncertainty of ± 0.14mm, what does this give for approximate uncertainty in the value of its volume?

Solution Uncertainty in measuring one side is

$$\frac{0.14}{30} \approx 0.00467$$

To find volume, you have to multiply side three times. When multiplying, relative uncertainty can be just added. Hence,

$$3 \cdot 0.00467 \approx 0.014$$

Is relative uncertainty in volume. Answer is 1%.