ICTM Math Contest Question Form

Suggested Category:

Alg I **Geom** **Alg II** **Pre-Calc** **FS2** **JS2**

FS8 **JS8** **Calculator** **FS Relay** **JS Relay**

Suggested Level of Difficulty:

Easy **Medium** **Hard** **Very Difficult**

1 **2** **3** **4** **5** **6** **7** **8** **9** **10**

Topic(s): _____

Question:

How many oranges with diameter 10cm can fit in a box of 50cm by 25cm by 20cm?

Answer:

35

Solution:

We need to first divide the volume of the box by the volume of one orange and then multiply it by Kepler's conjecture of average density, $\pi/(3\sqrt{2})$. That is:
$((50\times25\times20)/((4/3)\pi(10/2)^3))\times(\pi/(3\sqrt{2}))=35.3553\approx35$