

Stan works at the Christmas Ornament Packing Plant. He uses boxes sent by a box company. The boxes are shaped as rectangular prisms. He fills those boxes fill with ornaments. Each ornament is packed in an individual cube. Typically, a box measures 4’ x 3’ x 3’. The cube with the ornament in it is 1’ x 1’ x 1’.

1. How many ornament **cubes** fit into one box?
2. During the busiest time of year, the box company sends a different size box. This shipment’s boxes are ft x ft x ft. How many ornament cubes fit into one of these new boxes?
3. A nearby company packs fake wedding rings in small **cubes**. What must the size of the small cube be, such that it fills the boxes without any wasted space?



1. Make a **scale figure (drawing)** of the new box such that the centimeter cubes represent a ring box.



1. On the other side of the ring plant is a toy store that sells sand by the box. Mr. Sandman usually uses the same size box as Stan, (4’ x 3’ x 3’) and has an abundance of extra boxes. He sells the sand for $7 per box. Stan offers to exchange the boxes measuring ft x ft x ft with Mr. Sandman. If Mr. Sandman wants to keep the price per box at $7, should he exchange some boxes with Stan? Why or why not?
2. How can we relate the number of ring boxes to the amount of sand that can be put into the new box?
3. Can we generalize a way to find the volume of a rectangular prism with fractional side lengths?