

Part A: Geometric Measurement & Dimension [G-GMD.3]

1. Mr. Jones is inspecting rooms to determine their maximum occupancy. Building regulations require each person to have at least 20 square feet of floor space inside a room.

For each room, **select** the appropriate sign Mr. Jones should hang.

	Occupancy not to exceed 25 persons	Occupancy not to exceed 28 persons	Occupancy not to exceed 30 persons
A circular room with radius 14 feet.			
A rectangular room 17 feet wide and 30 feet long.			
A square room with side lengths of 24 feet.			

2. Veronica is painting the inside walls and ceiling of her walk-in closet. She will apply two coats of paint.

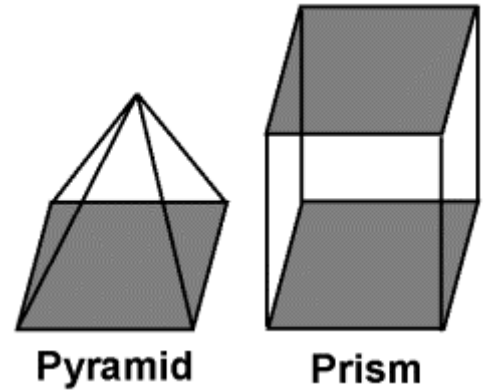
- The room is rectangular with length 10 feet, width 12 feet, and height 14 feet.
- The room has a door which will not be painted that has dimensions 3 feet by 7 feet.
- The room has no windows or other features on the walls.
- 1 gallon of paint will cover 400 square feet.
- Paint is sold in 2-gallon containers.

Determine the minimum number of containers of paint she will need to purchase. **Justify** your reasoning.

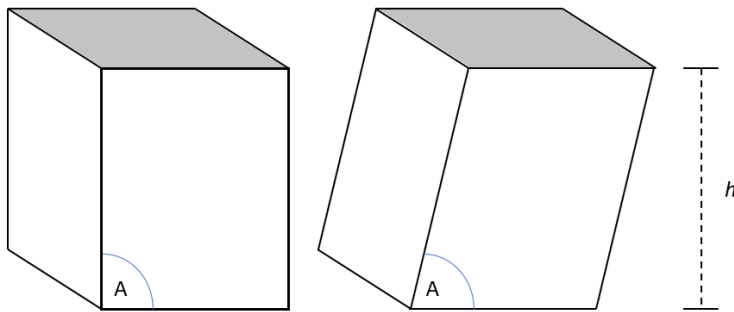
3. Suppose two containers are constructed such that container A is a rectangular pyramid and container B is a rectangular prism. Assume the two containers have congruent bases and the same height.

Container B is filled with water and then poured into container A.

Determine the percent of water from container B that it will take to completely fill container A. **Justify** your reasoning.



4. Consider the right rectangular prism shown below with $m\angle A = 90^\circ$ and height, h .



Consider a second rectangular prism, slanted such that $m\angle A < 90^\circ$, height is still h , and the base is congruent to the first prism's base (shaded).

Select the statement that is true and **justify** your reasoning.

- A) As the measure of $\angle A$ decreases, the volume of the prism will increase.
- B) As the measure of $\angle A$ decreases, the volume of the prism will remain the same.
- C) As the measure of $\angle A$ decreases, the volume of the prism will decrease.