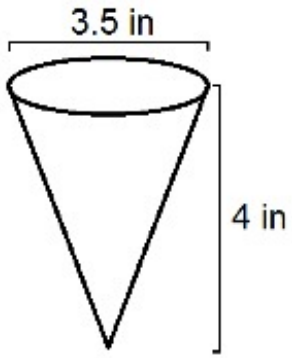
8.G Comparing Snow Cones

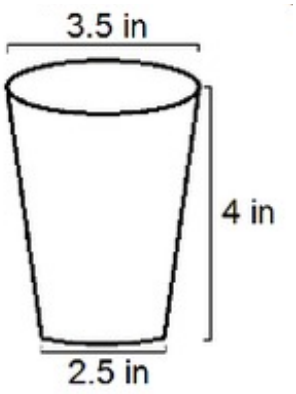
Task

Pablo's Icy Treat Stand sells home-made frozen juice treats as well as snow-cones. Originally, Pablo used paper cone cups with a diameter of 3.5 inches and a height of 4 inches.



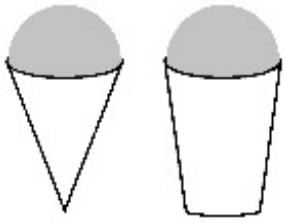
Conical Cup A

His supply store stopped carrying these paper cones, so he had to start using more standard paper cups. These are truncated cones (cones with the "pointy end" sliced off) with a top diameter of 3.5 inches, a bottom diameter of 2.5 inches, and a height of 4 inches.



Cup B

Because some customers said they missed the old cones, Pablo put a sign up saying "The new cups hold 50% more!" His daughter Letitia wonders if her father's sign is correct. Help her find out.



a. How much juice can cup A hold? (While cups for juice are not usually filled to the top, we can assume frozen juice treats would be filled to the top of the cup.)

b. How much juice can cup B hold?

c. By what percentage is cup B larger in volume than cup A?

d. Snow cones have ice filling the cup as well as a hemisphere of ice sticking out of the top of each cup. How much ice is in a snow cone for each cup?

e. By what percentage is the snow cone in cup B larger than the snow cone in conical cup A?

f. Is Pablo's sign accurate?