

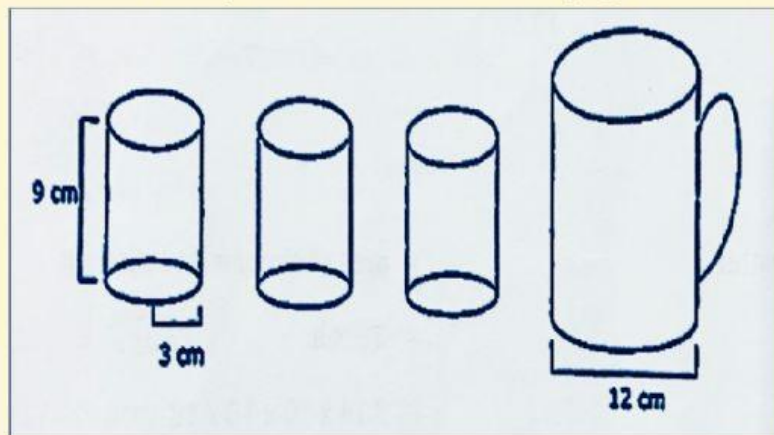
MATHEMATICS GRADE 9

Name: _____ No. ____ Grade 9/____

MATHEMATICAL SKILLS INVOLVING AREAS AND VOLUMES

Solve the problem. Show the solution.

Three identical cylindrical glasses of 9 cm high and 3 cm base radius are completely filled with water. Their contents are poured into a cylindrical jug with a diameter of 12 cm. How deep is the water in the jug?



Solution

a. Volume of a cylinder = area of circular end $\times$ height
= area of a circle $\times$ height
= $\pi r^2 \times h$
= $(3.14)(3)^2 \times 9 \text{ cm}$
= $28.26 \text{ cm}^2 \times 9 \text{ cm}$
= 254.34 cm^3

Volume of the 3 identical glasses = $254.34 \text{ cm}^3 \times 3 = 763.02 \text{ cm}^3$

b. Volume of water = area of circular end $\times$ height
= $\pi r^2 \times h$
= $\pi r^2 \times h$
 $763.02 \text{ cm}^3 = 3.14(6)^2 \times h$
 $763.02 \text{ cm}^3 = (3.14)(36) \times h$
 ~~$763.02 \text{ cm}^3 = 113.04 \times h$~~
 ~~$113.04 \text{ cm} = 113.04 \text{ cm}$~~
 $h = 6.75 \text{ cm}$

$\therefore$ The water jug is 6.75 cm