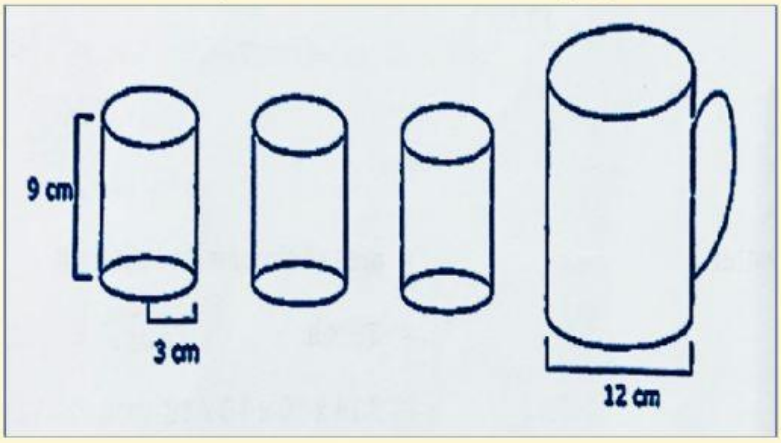
MATHEMATICS
GRADE 9

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 × height

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

Volume of the 3 identical glasses $= 254.34\ cm^3 \times 3 = 793.02\ cm^3$

b. Volume of water = area of circular end × height

$$= \pi r^2 \times h$$
$$= \pi r^2 \times h$$
$$763.02\ cm^3 = 3.14)(6)^2 \times h$$
$$763.02\ cm^3 = (3.14)(36) \times h$$
$$\frac{763.02\ cm^3}{113.04\ cm} = \frac{113.04 \times h}{113.04\ cm}$$
$$h = 6.75\ cm$$

$\therefore$ ***The water jug is 6.75 cm***

LIVEWORKSHEETS