# MATHEMATICS
# GRADE 9

Name: _____ No. ___ Grade 9/___

## MATHEMATICAL SKILLS INVOLVING AREAS AND VOLUMES

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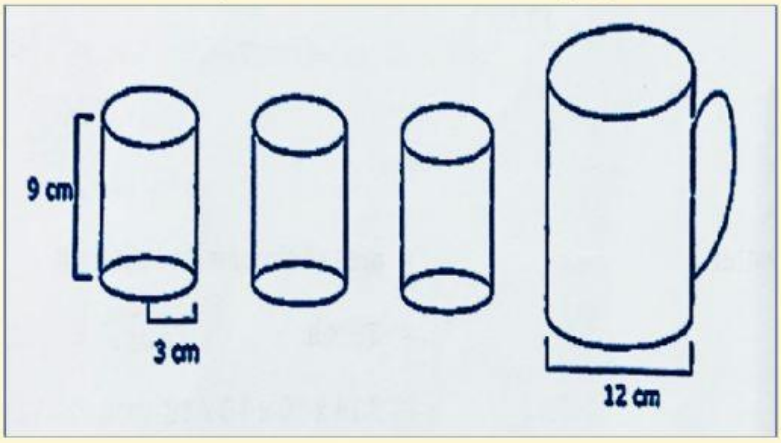
**Solve the problem. Show the solution.**

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**

= area of a circle × 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**

$= \pi r^2 \times h$

$= \pi r^2 \times h$

$763.02\ cm^3 = 3.14)(6)^2 \times h$

$763.02\ cm^3 = (3.14)(36) \times h$

$$\frac{\cancel{763.02\ cm^3}}{\cancel{113.04\ cm}} = \frac{\cancel{113.04} \times h}{\cancel{113.04\ cm}}$$

$h = 6.75\ cm$

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

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LIVEWORKSHEETS