Grade 9 Math - Section 1.4 - Surface Area of Composite Cylinders (Notes)
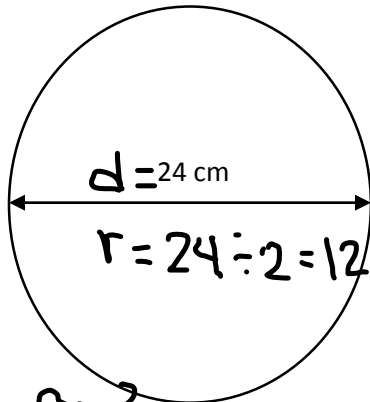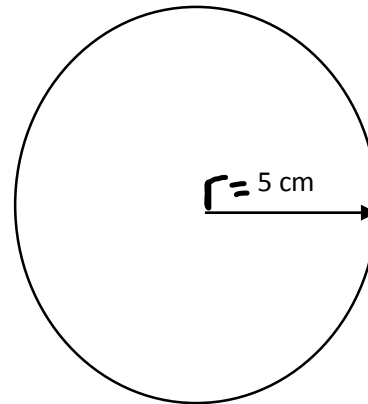
Name: _____

1. Find the area of each circle below.
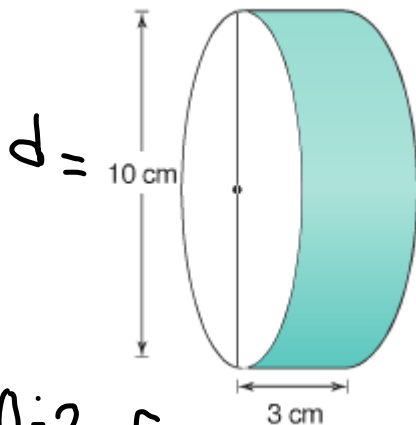
$d = 24$ cm

$r = 24 \div 2 = 12$

$A = \pi r^2$

$= (3.14)(12)^2$

$= 452.16 \text{cm}^2$

$r = 5$ cm

$A = \pi r^2$

$= (3.14)(5)^2$

$= 78.5 \text{cm}^2$

2. Find the Total Surface Area of Each Object

$d = 10$ cm

3 cm

$r = 10 \div 2 = 5$

$h = 3$

Surface Area$_{cylinder}$ =

area of two circles

area of curved surface

$\left[2\pi r^2\right] + \left[2\pi r h\right]$

$= \left[2 \cdot 3.14 \cdot 5^2\right] + \left[2 \cdot 3.14 \cdot 5 \cdot 3\right]$

$= 157 + 94.2$

$= 251.2 \text{cm}^2$

3. **A. What is the total area of overlap for the object below?**

$A = \pi r^2$

$= (3.14)(7)^2$

$= 153.86$

$\left.\begin{array}{l} \text{overlap} \\ = 2 \times 153.86 \\ = 307.72 \end{array}\right\}$

r = 7

d = 14 cm

Overlap

5 cm

5 cm

26 cm
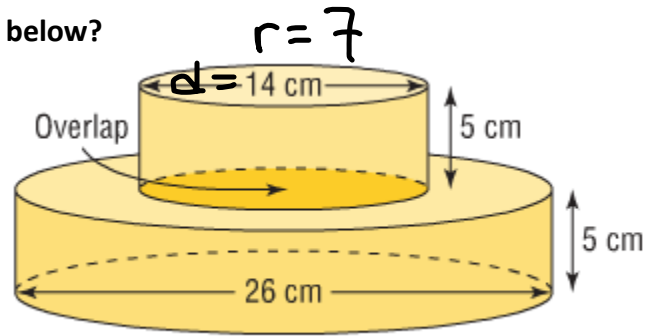
B. What is the surface area of the top cylinder?

S.A Top Cylinder $= \left[2\pi r^2\right] + \left[2\pi r h\right]$

$= \left[2 \cdot 3.14 \cdot 7^2\right] + \left[2 \cdot 3.14 \cdot 7 \cdot 5\right]$

$= 307.72 + 219.8$

$= 527.52$

C. What is the area of the bottom cylinder?

S.A Bottom Cylinder $= \left[2\pi r^2\right] + \left[2\pi r h\right]$

$= \left[2 \times 3.14 \times 13^2\right] + \left[2 \times 3.14 \times 13 \times 5\right]$

$= 1061.32 + 408.2$

$= 1469.52$

D. What is the total surface area of the composite object?

T.S.A $= 527.52 + 1469.52 - 307.72$

$= 1689.32 \text{ cm}^2$