4.7 Surface Area of a Right Cylinder – Notes

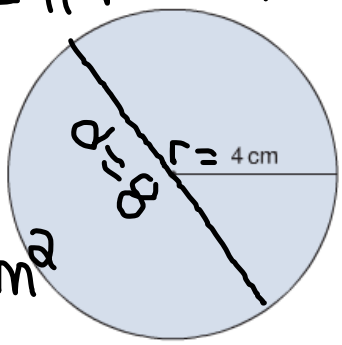
What is the area of this circle?

$A_{circle} = \pi r^2 = \pi \times r \times r$

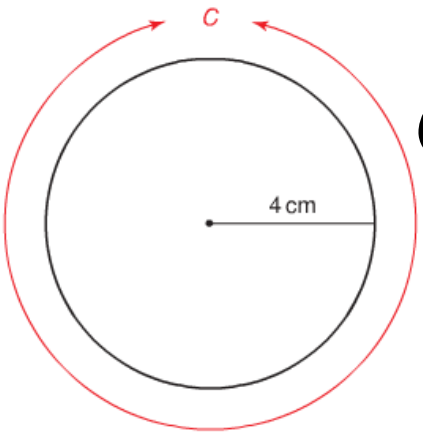
$= 3.14 \times 4^2$

$= 3.14 \times 16$

$= 50.24 cm^2$



What is the circumference of this circle?



$C = \pi d$

$C = 2\pi r$

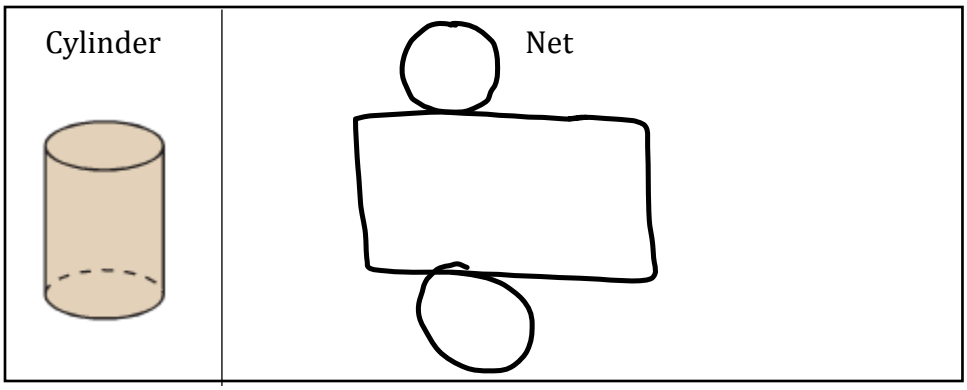
$= 2(3.14)(4)$

$= 25.12 cm$

Note: The bases of a right cylinder are 2 congruent (equal) circle.

The curved surface of a cylinder is a rectangle when laid flat.

These 3 shapes make the net of a cylinder.



SURFACE AREA OF CYLINDER = [2 x Area of Circle] + [Area of curved surface] ← base x height

$= [2 \times \pi r^2] + [2\pi r \times h]$ ← distance between 2 circles

Must memorize! NOT GIVEN →

$= [2\pi r^2] + [2\pi rh]$

Example (1): Find the surface area of the cylinder.

$$S.A_{cylinder} = [2\pi r^2] + [2\pi rh]$$

$$= [2 \times 3.14 \times 64] + [2 \times 3.14 \times 8 \times 11]$$

$$= [401.92] + [552.64]$$

$$= 954.56 cm^2$$

$r = 8$

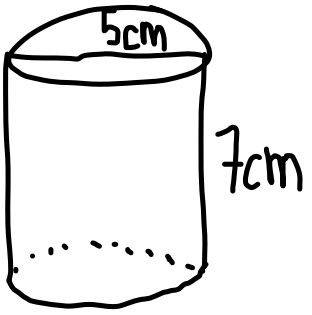
$r^2 = 8^2 = 64$

$h = 11$

Example (2): A manufacturer produces a can with height 7 cm and diameter 5 cm.

What is the surface area of the label, to one decimal place?

curved surface only



$$S.A_{curved\ surface} = [2\pi rh]$$

$$= [2 \times 3.14 \times 2.5 \times 7]$$

$$= 109.9 cm^2$$

$r = 5 \div 2 = 2.5$

$r^2 = 2.5^2 = 6.25$

$h = 7$