

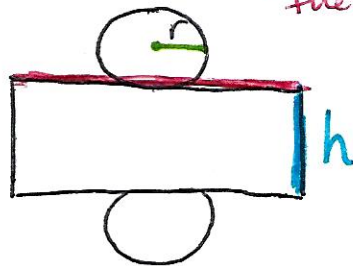
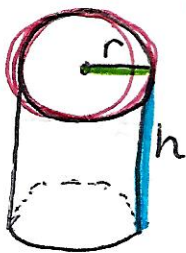
# 9.3 Surface Area of Cylinders

EQ: How can we find the surface area of a cylinder?

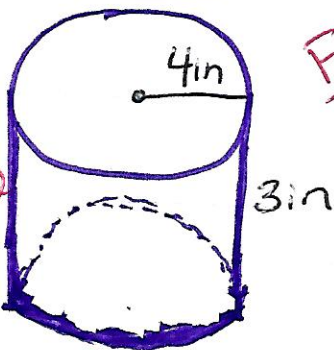
Formula: area of bases (2 circles) + area of lateral surface (rectangle)

$$S = 2\pi r^2 + 2\pi r h$$

we have 2 circles      area of circle      circumference "AKA" the base      height



## Example 1:



Formula

$$S = \text{area of bases} + \text{area of lateral surface}$$

$$2\pi r^2 + 2\pi r h$$

$$2\pi(4)^2 + 2\pi(4)(3)$$

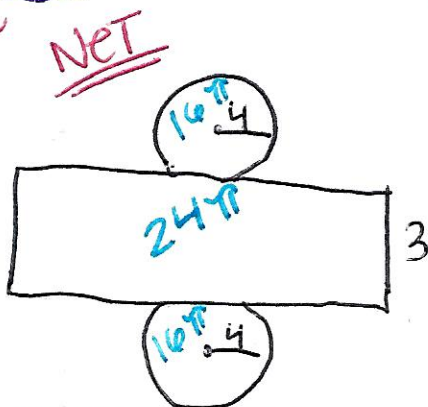
$$2\pi(16) + 2\pi(12)$$

$$32\pi + 24\pi$$

$$56\pi$$

$$= 175.8 \text{ in}^2$$

\* The circumference of the circle is the base of the rectangle



$$16\pi + 16\pi + 24\pi$$

$$56\pi = 175.8 \text{ in}^2$$

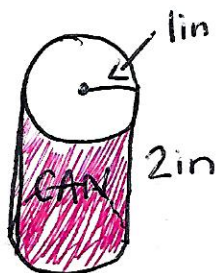
## List

Top Circle:  $\pi(4)^2 = 16\pi$   
 Bottom Circle:  $\pi(4)^2 = 16\pi$   
 Rectangle:  $2\pi(4) \times 3 = 8\pi \times 3 = 24\pi$

$$56\pi$$

$$= 175.8 \text{ in}^2$$

Example 2: How much paper ~~can~~ <sup>is used</sup> for the label of this can?



label = just the lateral surface

$$= \text{base} \times \text{height} \\ = 2\pi r \times h$$

$$= 2\pi(1) \cdot (2)$$

$$= 2\pi \cdot 2$$

$$= 4\pi$$

$$= 12.56 \text{ in}^2$$