4.8 Volume of a Right Cylinder – Notes

To calculate the volume of a right prism, you need to multiply the base area by the height (distance between the two bases).

$A_{rectangle} = bh$

$A_{triangle} = \frac{bh}{2}$

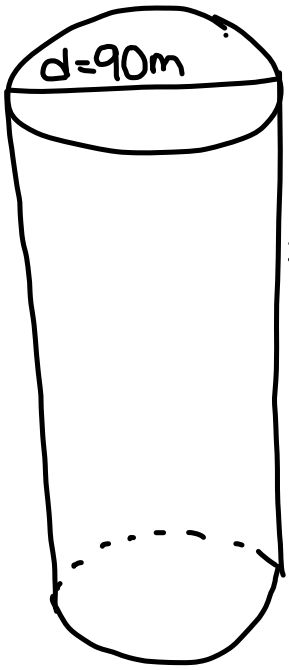
$A_{circle} = \pi r^2$

Volume = Area of Base × Height
$V = Ah$

Example (1): The area of the base of a cylinder is about 154 cm^2.
The height of the cylinder is 24 cm.
Find the volume of the cylinder.

$V = Ah$
$= 154 \times 24$
$= 3696 cm^3$

Example (2): In 2002, nine Pennsylvania miners were trapped in a flooded coal mine. Rescue workers drilled a hole about 90 m wide and 73 m deep into the ground to make an escape shaft. The soil from the hole was removed and piled on the ground. What volume of soil did the rescue workers remove? Give your answer to the nearest cubic metre.



$r = 90 \div 2 = 45$

$r^2 = 45^2 = 2025$

$V = Ah$

$= (\pi r^2) \times h$

$= (3.14 \times 2025) \times 73$

$= 464170.5\ m^3$

So, $464171\ m^3$