

Example 1 Find the missing height given lateral area

① Rule

$$A_L = P_b \times h$$

Base rectangle $P_b = 2(l) + 2(w)$

$A_L = 108 \text{ m}^2$ ② Plug in

③ solve

$$\frac{108}{18} = \frac{18h}{18}$$

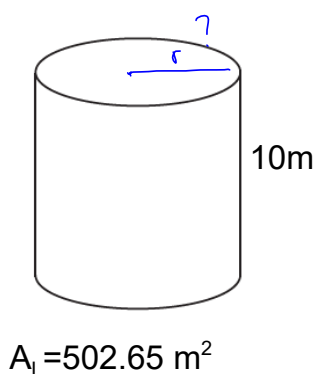
$$\boxed{6\text{m} = h}$$

$$P_b = 2(5) + 2(4)$$

$$P_b = 10 + 8$$

$$= 18\text{m}$$

Example 2 Find the radius when given lateral area



① Rule

$$A_L = 2\pi r h$$

② Plug-In

$$502.65 = 2\pi r (10)$$

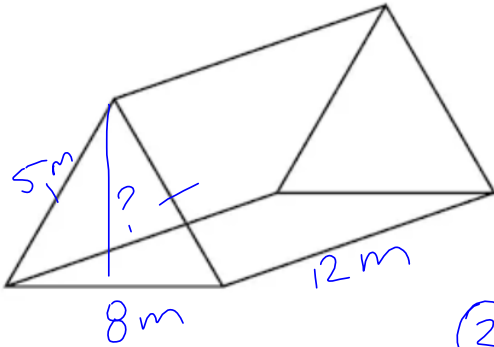
③ Solve

$$\frac{502.65}{20\pi} = \frac{20\cancel{\pi}r}{20\cancel{\pi}}$$

$$7.999 = r$$

$$\boxed{8\text{m} = r}$$

Example 3 Find the measure of the base of the triangle



$$A_T = 240 \text{ m}^2$$

① Rule

$$A_T = 2A_b + A_L$$

$$\textcircled{2} A_L = P_b \times h$$

$$P_b = 2(5) + 8$$

$$P_b = 10 + 8$$

$$P_b = 18 \text{ m}$$

$$A_L = 18(12)$$

$$A_L = 216 \text{ m}^2$$

③

$$240 = 2A_b + 216$$

$$\begin{array}{r} 240 \\ -216 \\ \hline \end{array} = \begin{array}{r} 2A_b \\ -216 \\ \hline \end{array}$$

$$\frac{24}{2} = \frac{2A_b}{2}$$

$$12 = A_b$$

$$\textcircled{4} A_b = \frac{bh}{2} \quad 2(12) = \left(\frac{8h}{2}\right) 2$$

$$\frac{24}{8} = \frac{8h}{8} \quad \boxed{3\text{m} = h}$$