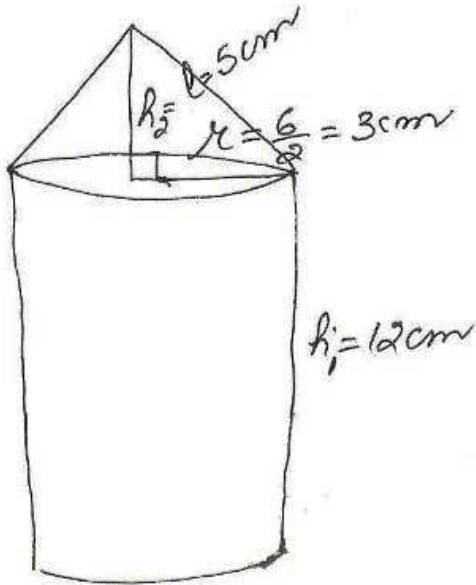


14



$$\begin{aligned}
 &= \pi r^2 \left( \frac{h_2}{3} + h_1 \right) \\
 &= 3.14 \times 3^2 \left( \frac{4}{3} + 12 \right) \\
 &= 3.14 \times 9 \times \frac{40}{3} \\
 &= 376.8 \text{ cm}^3
 \end{aligned}$$

$$\begin{aligned}
 h_2 &= \sqrt{l^2 - r^2} \\
 &= \sqrt{5^2 - 3^2} \\
 &= \sqrt{25 - 9} \\
 &= \sqrt{16} \\
 &= 4 \text{ cm}
 \end{aligned}$$

TSA of rocket

= CSA of cone + CSA cyl. + area of base

$$\begin{aligned}
 &= \pi r l + 2\pi r h_1 + \pi r^2 \\
 &= \pi r (l + 2h_1 + r)
 \end{aligned}$$

$$= 3.14 \times 3 (5 + 24 + 3)$$

$$= 3.14 \times 3 \times 32$$

$$= 301.44 \text{ cm}^2$$

volume of rocket

$$\begin{aligned}
 &= \text{vol. of cone} + \text{vol. of cylindrical part} \\
 &= \frac{1}{3} \pi r^2 h_2 + \pi r^2 h_1
 \end{aligned}$$