

$V = \pi r^2 h / 3$, so

$$\begin{aligned}\frac{dV}{dt} &= \frac{\partial V}{\partial r} \frac{dr}{dt} + \frac{\partial V}{\partial h} \frac{dh}{dt} = \frac{2\pi r h}{3} 1.4 + \frac{\pi r^2}{3} (-2.4) \\ &= 14739.20\pi - 10035.20\pi = 4704\pi \text{ in}^3/\text{s}.\end{aligned}$$