



So we have $\frac{r}{h} = \frac{4}{10}$ or $r = \frac{2}{5}h$

Plug this expression for r back into V to get

$$V = \frac{1}{3}\pi\left(\frac{2}{5}h\right)^2h = \frac{4}{3(25)}\pi h^3$$

Now let's differentiate both sides of this equation with respect to time

$$\frac{dV}{dt} = \frac{4}{25}\pi h^2 \frac{dh}{dt}$$

Now plug in the numbers $\frac{dV}{dt} = 2$ and $h = 5$ $2 = \frac{4}{25}\pi(5)^2 \frac{dh}{dt}$ to get $\frac{dh}{dt} = \frac{1}{2\pi}$.