



similar Δ 's

$$\frac{3}{2} = \frac{3-h}{r}$$

$$3r = 6 - 2h$$

$$r = 2 - \frac{2}{3}h$$

" $\frac{2}{3}(3-h)$

better

$$\frac{3}{2} \cdot r = 3-h$$



$$r = \frac{2}{3}(3-h)$$



$$V = \frac{1}{3}\pi r^2 h = \frac{1}{3}\pi \left(\frac{2}{3}(3-h)\right)^2 (3-h)$$

$$V = 4\pi - \frac{\pi}{3} \cdot \left(\frac{2}{3}\right)^2 (3-h)^2 (3-h) = \frac{4\pi}{9} (3-h)^3$$

$$V = \frac{1}{3}\pi r^2 h$$

$$V = \frac{1}{3}\pi \left(2 - \frac{2}{3}h\right)(3-h)$$

deriv. require product rule

$\frac{dV}{dt}$

sub: $\frac{dV}{dt} = \frac{4\pi}{9} (3-h)^2 \left(-\frac{dh}{dt}\right) \rightsquigarrow 2 = \left(-\frac{4\pi}{9} (3-h)^2 \left(-\frac{dh}{dt}\right)\right)$ (isolate)

$$\frac{dh}{dt} = 2 \left(\frac{-9}{4\pi}\right) \frac{1}{4} (-1) = \frac{18}{4\pi \cdot 4} = \frac{9}{8\pi(3-1)^2}$$