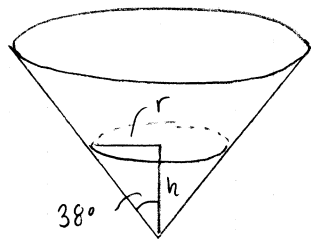


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$$V = 0,64h^3$$

(a) Bestäm $\frac{dh}{dt}$ om $\frac{dV}{dt} = 15 \text{ (dm}^3\text{/min)}$ då $h = 3,0 \text{ (dm)}$

Kedjeregeln ger

$$\frac{dV}{dt} = \frac{dV}{dh} \cdot \frac{dh}{dt} = 0,64 \cdot 3 \cdot h^2 \frac{dh}{dt}$$

Insättning av värden ger

$$15 = 0,64 \cdot 3 \cdot 3,0^2 \cdot \frac{dh}{dt} \Rightarrow \frac{dh}{dt} = \frac{15}{0,64 \cdot 3 \cdot 3,0^2} = 0,87 \text{ (dm/min)}$$

(b) $\tan 38^\circ = \frac{r}{h} \Rightarrow r = h \cdot \tan 38^\circ$

Koniens volym

$$V = \frac{\pi r^2 h}{3} = \frac{\pi (h \cdot \tan 38^\circ)^2 \cdot h}{3} = \frac{\pi (\tan 38^\circ)^2}{3} h^3 = 0,64h^3$$

Svar: (a) 0,87 dm/min