

$$1) \quad H = 10,0 \text{ m} \quad S = 20,0 \text{ m}$$

$$V = \frac{1}{3} G \cdot h$$

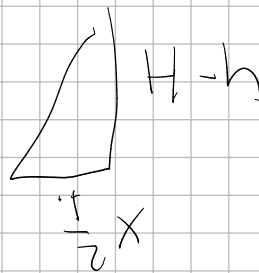
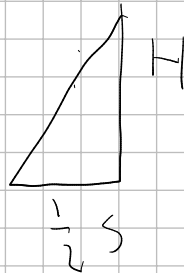
$$V \text{ av hele} = \frac{1}{3} S^2 H$$

V av det som ikke er ferdig;

$$V_2 = \frac{1}{3} x^2 (H-h)$$

Formlikhet gir X

$$\frac{\frac{1}{2} S}{\frac{1}{2} X} = \frac{H}{H-h}$$



$$\frac{S}{X} = \frac{H}{H-h}$$

$$\frac{S(H-h)}{H} = X$$

$$X = \frac{20(10-h)}{10}$$

$$\underline{x = 20 - 2h}$$

$$V(h) = V_{\text{Hale}} - V_{\text{ikke ferdig}}$$

$$= \frac{1}{3} s^2 H - \frac{1}{3} (20 - 2h)^2 (1 - h)$$

$$= \frac{1}{3} (4000 - (400 - 40h + h^2) \cdot (10 - h))$$

$$= \frac{1}{3} (4000 - [400(10 - h) - 40h(10 - h) + h^2(10 - h)])$$

$$= \frac{1}{3} (4000 - [4000 - 400h - 400h + 40h^2 + 10h^2 - h^3])$$

$$= \frac{1}{3} (1100h - 120h^2 - 10h^2 + h^3)$$

$$= \frac{1}{3} (h^3 - 30h^2 + 1100h)$$

$$11) \quad v(h) = \frac{4}{3} \cdot (h^3 - 30h^2 + 300h)$$

$$\frac{dh}{dt} = 2,0 \quad (h = 6)$$

$$\frac{dV}{dt} = \frac{4}{3} \left(3h^2 \frac{dh}{dt} - 15h \frac{dh}{dt} + 300 \frac{dh}{dt} \right)$$

$$\frac{dV}{dt} = 4h^2 \frac{dh}{dt} - 20h \frac{dh}{dt} + 400 \frac{dh}{dt}$$

Setter inn $\frac{dh}{dt} = 2,0$ og $h = 6,0$

$$\left. \frac{dV}{dt} \right|_{h=6,0 \text{ m}, h'=2,0 \text{ m/s}}$$

$$= 4 \cdot 6^2 \cdot 2 - 20 \cdot 6 \cdot 2 + 400 \cdot 2$$

$$= 848 \frac{\text{m}^3}{\text{s}}$$

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