

Geometri

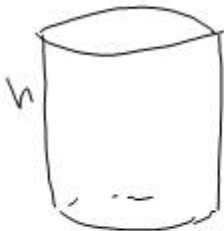
(9.1, 9.2, 9.4-9.9)

Volum / overflate av noen
 tredim. figurer

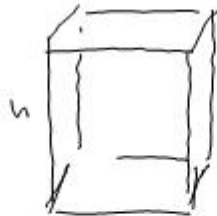
(9.1-9.2)
~~(9.1-9.2)~~

Prismer:

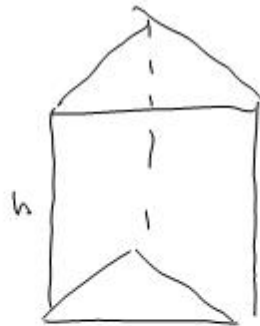
{ Toppflate og bunnflate
 er like



Sylinder

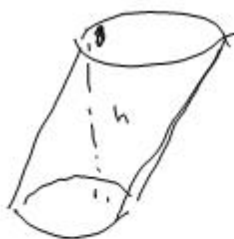


rektangulært
prisme



trekantet
prisme

Rette
prismer



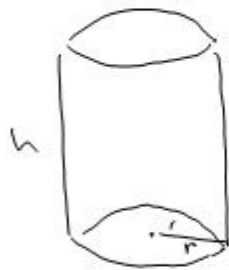
skjev
sylinder

Skjeve
prismer

Volum:

$$V = \text{Grunnflate} \cdot \text{høyde}$$

Eks:



r: radius
h: høyde

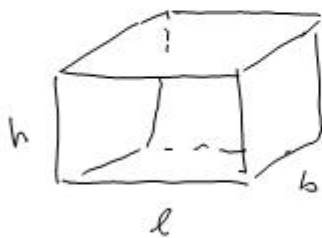
Rettt sylinder

$$V = \pi r^2 \cdot h$$

$$O = \pi r^2 + \pi r^2 + 2\pi r \cdot h \\ = 2\pi r^2 + 2\pi r h$$



Eks:

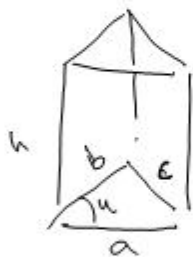


Rettl ~~prisme~~
rektangulært
prisme

$$V = l \cdot b \cdot h$$

$$O = 2l \cdot b + 2l \cdot h + 2bh$$

Eks:



Rettt trekant
prisme

$$V = \frac{1}{2} \cdot ab \cdot \sin(\alpha) \cdot h$$

$$O = ab \cdot \sin(\alpha) + ah \\ + b \cdot h + c \cdot h$$

Pyramider

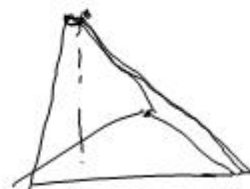
{ grunnflate : ...
 toppflate : et punkt.



Rett kjegle



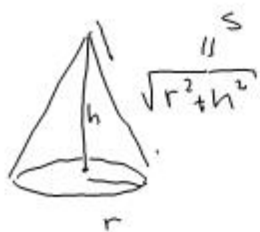
Rektangulær pyramide



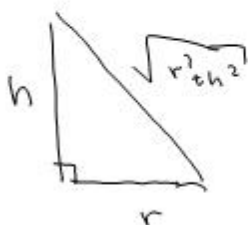
Trekantet pyramide

$$V = \frac{1}{3} \cdot \text{Grunnflate} \cdot \text{høyde}$$

Eks:



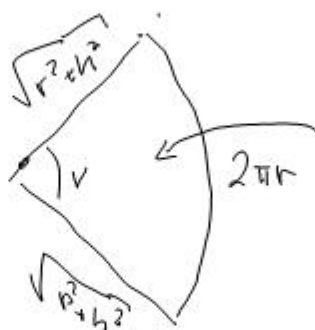
Rett kjegle



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

$$O = \pi r^2 + \frac{1}{2} r^2 \cancel{\dots} \pi r \cdot \sqrt{r^2 + h^2}$$

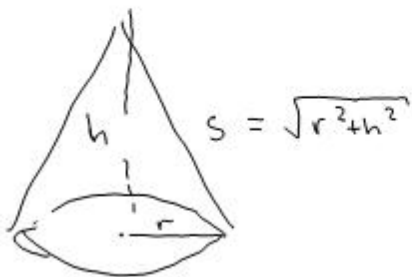
$$v = \frac{2\pi r}{\sqrt{r^2 + h^2}}$$



$$A = \cancel{\frac{1}{2} \cdot 2\pi r \cdot \sqrt{r^2 + h^2}}$$

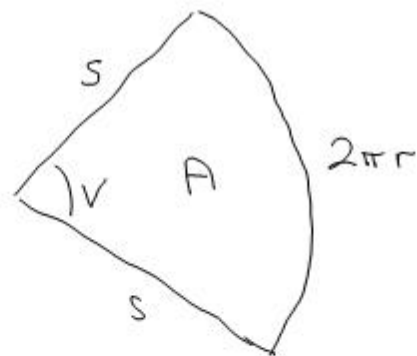
$$\begin{aligned}
 A &= \frac{1}{2} \cdot \left(\sqrt{r^2 + h^2} \right)^2 \cdot \frac{2\pi r}{\sqrt{r^2 + h^2}} \\
 &= \frac{\pi r (r^2 + h^2)}{\sqrt{r^2 + h^2}} = \pi r \cdot \sqrt{r^2 + h^2}
 \end{aligned}$$

Oppsummering:



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

$$O = \pi r^2 + \pi r s$$



$$v = \frac{2\pi r}{s}$$

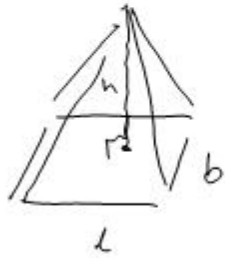
$$A = \frac{1}{2} s^2 \cdot v$$

$$= \frac{1}{2} s^2 \cdot \frac{2\pi r}{s}$$

$$= \frac{s^{\cancel{2}} \cdot 2\pi r}{\cancel{2} \cdot \cancel{s}}$$

$$= \underline{\pi r s}$$

Eks:



Rektangulær
pyramide

$$V = \frac{1}{3} \cdot (lb) \cdot h$$

$$O = lb + \text{summen af } \sqrt{\text{arealet til}} \text{ de fire sidelatte (trekanter)}$$

kule:



$$V = \frac{4}{3} \pi r^3$$

$$O = 4 \pi r^2$$