

Div. Formler på Arealer og Volume

Arealer:

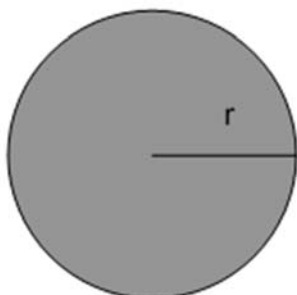
Cirkel

Areal:

$$A = \pi \cdot r^2$$

Perimeter

$$P = 2 \cdot \pi \cdot r$$

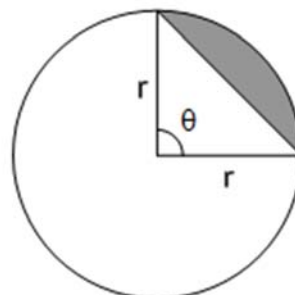


Cirkelafsnit

Areal:

$$A = \frac{1}{2} \cdot r^2 \cdot (\theta - \sin(\theta))$$

(θ i radianer)



Cirkeludsnit

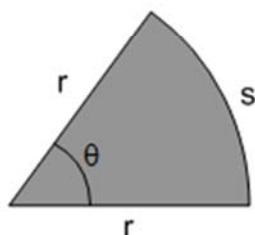
Areal:

$$A = \frac{1}{2} \cdot r^2 \cdot \theta$$

(θ i radianer)

Bue længde:

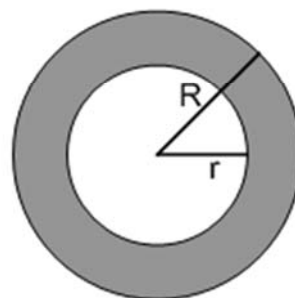
$$S = r \cdot \theta$$



Cirkelring

Areal:

$$A = \pi \cdot (R^2 - r^2)$$



Ellipse

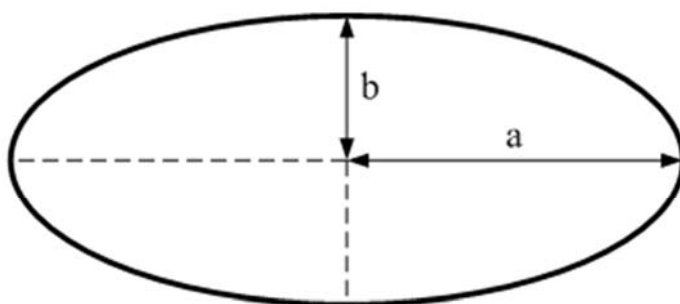
Areal

$$A = \pi \cdot a \cdot b$$

Perimeter

$$P = 4 \cdot a \cdot \int_0^{\frac{\pi}{2}} \sqrt{1 - k^2 \cdot \sin^2 \theta} \, d\theta, \quad k = \frac{\sqrt{a^2 - b^2}}{a}$$

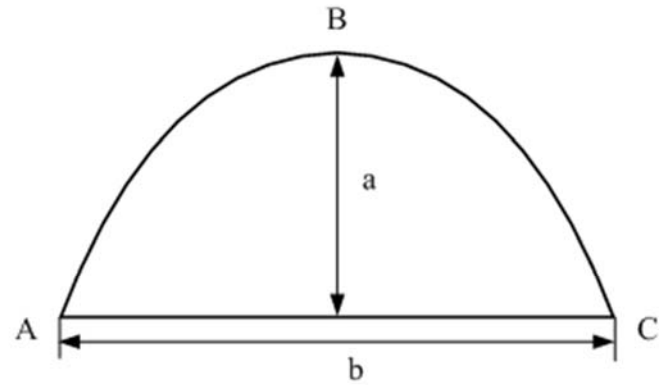
$$\approx 2 \cdot \pi \cdot \sqrt{\frac{1}{2} \cdot (a^2 + b^2)}$$



Parabel

Areal

$$A = \frac{2}{3} \cdot a \cdot b$$



Buelængde

$$ABC = \frac{1}{2} \sqrt{b^2 + 16 \cdot a^2} + \frac{b^2}{8 \cdot a} \cdot \ln \left(\frac{4 \cdot a + \sqrt{b^2 + 16 \cdot a^2}}{b} \right)$$

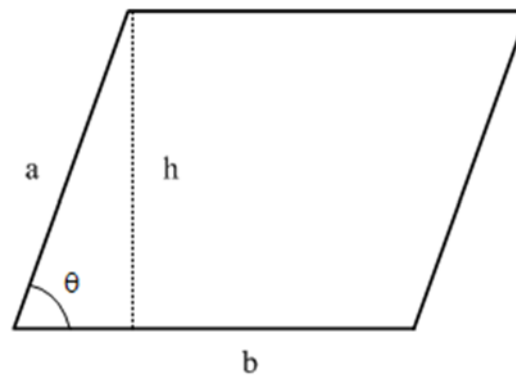
Parallelogram

Areal

$$A = b \cdot h = a \cdot b \cdot \sin \theta$$

Perimeter

$$P = 2 \cdot a + 2 \cdot b$$



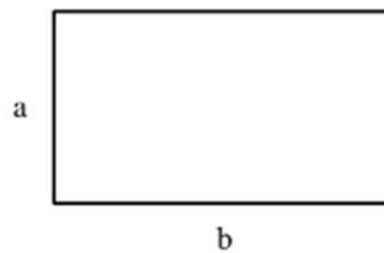
Rektangel

Areal

$$A = a \cdot b$$

Perimeter

$$P = 2 \cdot a + 2 \cdot b$$



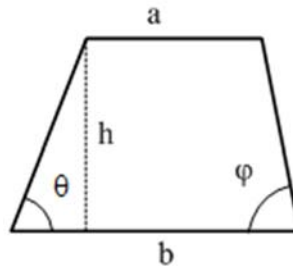
Trapez

Areal

$$A = \frac{1}{2} \cdot h \cdot (a + b)$$

Perimeter

$$P = a + b + h \cdot \left(\frac{1}{\sin\theta} + \frac{1}{\sin\varphi} \right)$$



Trekant

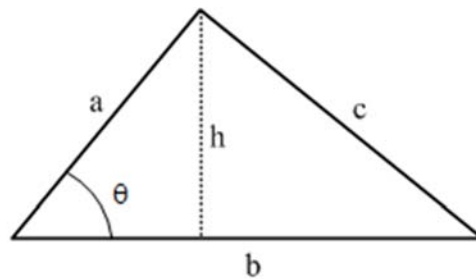
Areal

$$A = \frac{1}{2} \cdot h \cdot b$$

$$= \frac{1}{2} a \cdot b \cdot \sin\theta$$

$$= \sqrt{s(s-a)(s-b)(s-c)}$$

$$s = \frac{1}{2}(a + b + c)$$



Perimeter

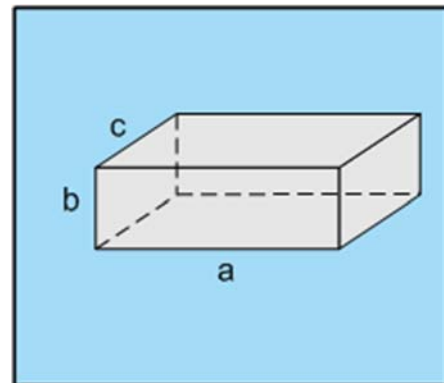
$$P = a + b + c$$

Volumer:

Retvinklet parallellepipedum med længde a, højde b og bredde c

Volumen $V = a \cdot b \cdot c$

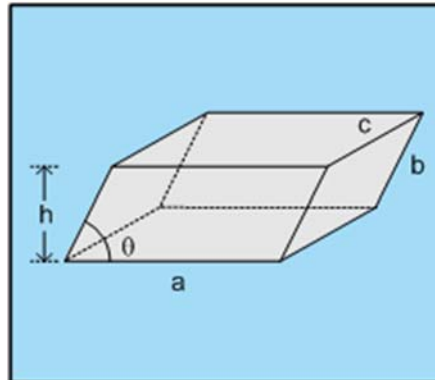
Overflade $O = 2 \cdot (a \cdot b + a \cdot c + b \cdot c)$



Skævvinklet parallelipedum med længde a, højde b og bredde c

Volumen

$$V = a \cdot b \cdot c \cdot \sin(\theta)$$



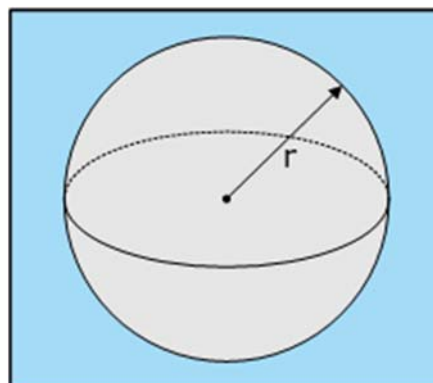
Kugle med radius r

Volumen

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

Overflade

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

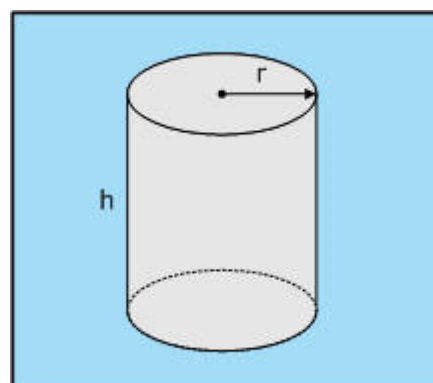


Volumen

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

Krumme overflade

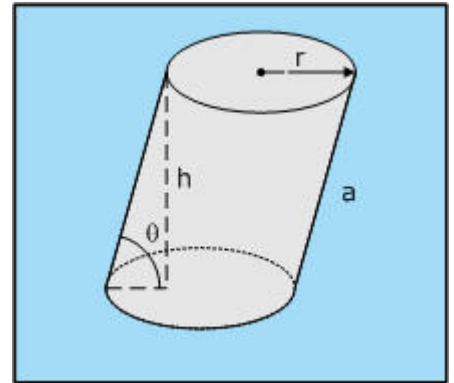
$$O = 2 \cdot \pi \cdot r \cdot h$$



Skævvinklet cylinder med radius r og højde h

Volumen $V = \pi \cdot r^2 \cdot h = \pi \cdot r^2 \cdot a \cdot \sin(\theta)$

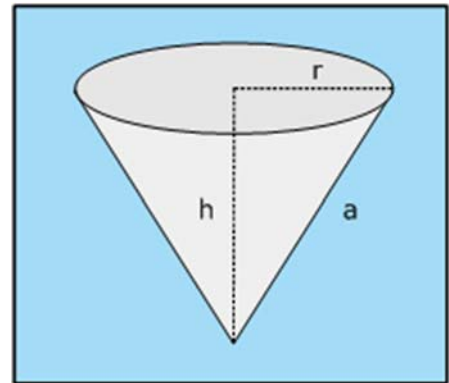
Krummeoverflade $O = 2 \cdot \pi \cdot r \cdot a = \frac{2 \cdot \pi \cdot r \cdot h}{\sin(\theta)}$



Ret kegle

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

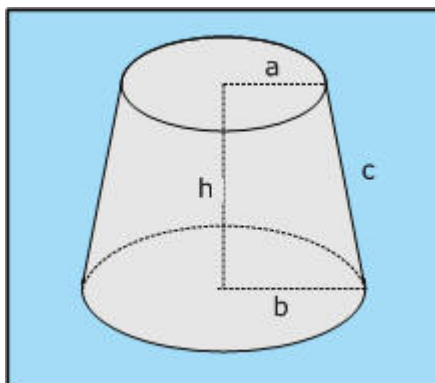
Krumme overflade $O = \pi \cdot r \cdot \sqrt{r^2 + h^2} = \pi \cdot r \cdot a$



Keglestub

Volumen $V = \frac{1}{3} \cdot \pi \cdot h \cdot (a^2 + a \cdot b + b^2)$

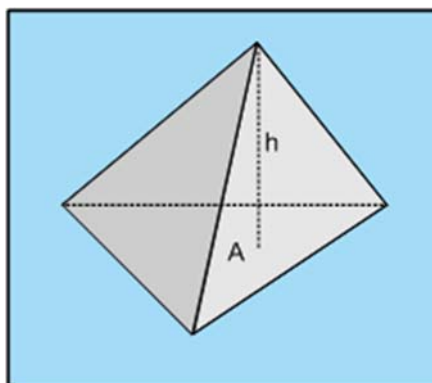
Krumme overflade $O = \pi \cdot (a + b) \cdot \sqrt{h^2 + (b - a)^2} = \pi \cdot (a + b) \cdot c$



Tresidet pyramide med grundfladeareal A og højde h

Volumen

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



Firedet pyramide

Firesidet pyramide med grundfladeareal A og højde h

Volumen

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

