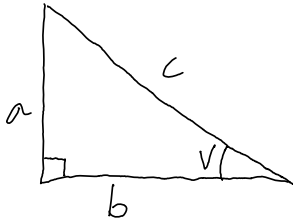


# Repetition av trigonometri och några exakta trigonometriska värden

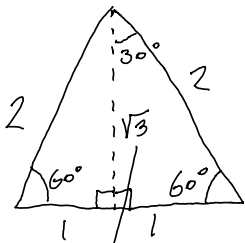
Trigonometri undersöker relationen mellan en rätvinklig triangelns sidor och vinklar



$$\tan V = \frac{a}{b} \quad \sin V = \frac{a}{c} \quad \cos V = \frac{b}{c}$$

Härleda några exakta trigonometriska värden

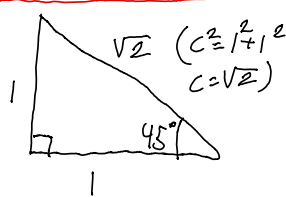
linsidig triangel



$$\begin{aligned} 2^2 &= h^2 + 1 \\ 4 - 1 &= h^2 \\ \sqrt{3} &= h \end{aligned} \quad \begin{aligned} \sin 60^\circ &= \frac{\sqrt{3}}{2} \\ \cos 60^\circ &= \frac{1}{2} \\ \tan 60^\circ &= \frac{\sqrt{3}}{1} = \sqrt{3} \end{aligned}$$

$$\begin{aligned} \sin 30^\circ &= \frac{1}{2} \\ \cos 30^\circ &= \frac{\sqrt{3}}{2} \\ \tan 30^\circ &= \frac{1}{\sqrt{3}} \end{aligned}$$

lixbent triangel



$$\begin{aligned} \sqrt{2} \quad (c^2 &= 1^2 + 1^2 \\ c &= \sqrt{2}) \end{aligned} \quad \begin{aligned} \sin 45^\circ &= \frac{1}{\sqrt{2}} \quad \cos 45^\circ = \frac{1}{\sqrt{2}} \\ \tan 45^\circ &= 1 \end{aligned}$$

Ex) Bestäm vinkeln  $V$  om  $\sim$  invers till  $\sin V$

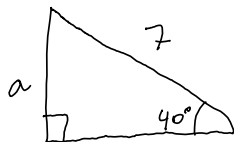
a)  $\sin V = 0,3 \quad \sin^{-1}(0,3) \approx 17,5^\circ$

b)  $\cos V = 0,8 \quad \cos^{-1}(0,8) \approx 36,9^\circ$

c)  $\tan V = 2 \quad \tan^{-1}(2) \approx 63,4^\circ$

Ex) Bestäm sträckan  $a$

(cm)

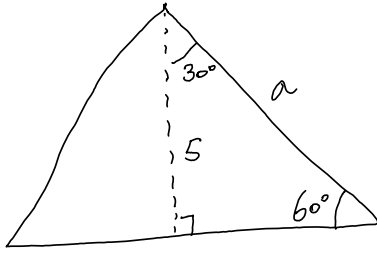


$$\sin 40^\circ = \frac{a}{7}$$

$$a = \sin 40^\circ \cdot 7 \approx 4,5 \text{ cm}$$

Ex) Bestäm ströckan  $a$  utan miniräknare

(1.e)



$$\sin 60^\circ = \frac{\sqrt{3}}{2}$$

$$\sin 60^\circ = \frac{5}{a}$$

$$\frac{\sqrt{3}}{2} = \frac{5}{a}$$

$$\sqrt{3}a = 10$$

$$a = \frac{10}{\sqrt{3}} \quad \text{Svar: } \frac{10}{\sqrt{3}} \text{ l.e}$$