**Matematiikan Perusmetodit I/sov.**
**Trigonometrisia kaavoja**

(1)  $\sin^2 x + \cos^2 x = 1$

(2)  $\sin(\frac{\pi}{2} - x) = \cos x, \quad \cos(\frac{\pi}{2} - x) = \sin x,$
   $\tan(\frac{\pi}{2} - x) = \cot x, \quad \cot(\frac{\pi}{2} - x) = \tan x.$

(3)  $\sin(\pi - x) = \sin x, \quad \cos(\pi - x) = -\cos x,$
   $\tan(\pi - x) = -\tan x, \quad \cot(\pi - x) = -\cot x.$

(4)  $\sin(x \pm y) = \sin x \cos y \pm \cos x \sin y,$
   $\cos(x \pm y) = \cos x \cos y \mp \sin x \sin y.$

(5)  $\tan(x \pm y) = \frac{\tan x \pm \tan y}{1 \mp \tan x \tan y},$
   $\cot(x \pm y) = \frac{\cot x \cot y \mp 1}{\cot y \pm \cot x}.$

(6)  $\sin 2x = 2 \sin x \cos x,$
   $\cos 2x = \cos^2 x - \sin^2 x = 1 - 2\sin^2 x = 2\cos^2 x - 1,$
   $\tan 2x = \frac{2 \tan x}{1 - \tan^2 x},$
   $\cot 2x = \frac{\cot^2 x - 1}{2 \cot x}.$

(7)  $\sin x \pm \sin y = 2 \sin \frac{x \pm y}{2} \cos \frac{x \mp y}{2},$
   $\cos x + \cos y = 2 \cos \frac{x+y}{2} \cos \frac{x-y}{2},$
   $\cos x - \cos y = -2 \sin \frac{x+y}{2} \sin \frac{x-y}{2}.$

(8)  $y = \overline{\text{arc}} \sin x, \; x \in [-1, 1] \Leftrightarrow \sin y = x, \; y \in [-\frac{\pi}{2}, \frac{\pi}{2}].$

(9)  $y = \overline{\text{arc}} \cos x, \; x \in [-1, 1] \Leftrightarrow \cos y = x, \; y \in [0, \pi].$

(10)  $y = \overline{\text{arc}} \tan x, \; x \in \mathbb{R} \Leftrightarrow \tan y = x, \; y \in ]-\frac{\pi}{2}, \frac{\pi}{2}[.$