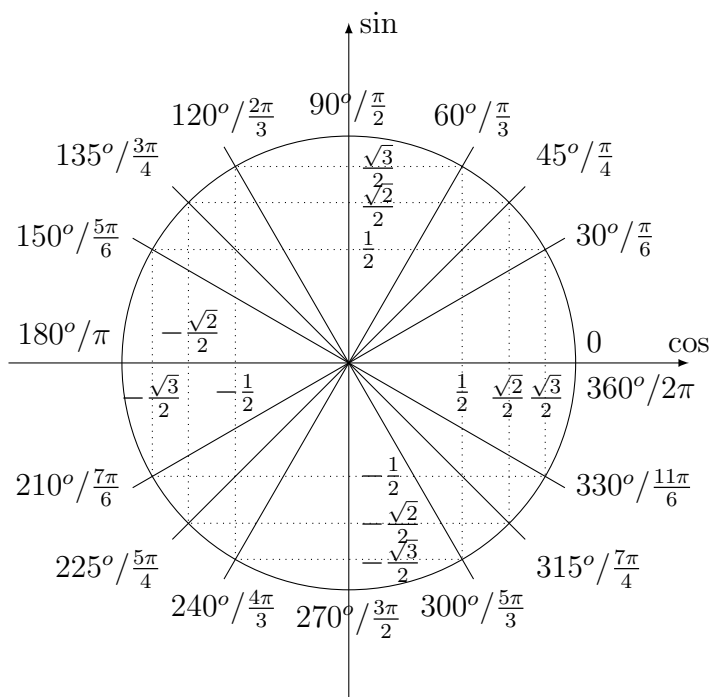


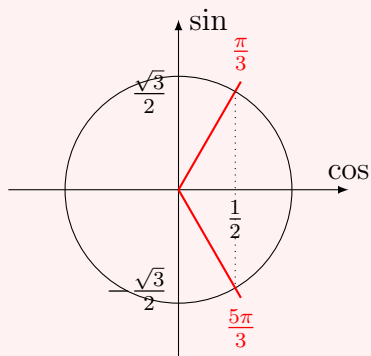
# Arbeidshefte

## Trigonometriske likninger



Grader	0	30	45	60	90
Radianer	0	$\pi/6$	$\pi/4$	$\pi/3$	$\pi/2$
sin	0	$\frac{1}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{\sqrt{3}}{2}$	1
cos	1	$\frac{\sqrt{3}}{2}$	$\frac{\sqrt{2}}{2}$	$\frac{1}{2}$	0
tan	0	$\frac{\sqrt{3}}{3}$	1	$\sqrt{3}$	ikke def.

**Eksempel**



$$\cos x = \frac{1}{2}, \quad x \in \langle 0, 2\pi \rangle$$
$$x_1 = \frac{\pi}{3} + n \cdot 2\pi \vee x_2 = \frac{5\pi}{3} + n \cdot 2\pi$$
$$x = \left\{ \frac{\pi}{3}, \frac{5\pi}{3} \right\}$$

**Eksempel**

$$2 \cos x = 1$$
$$\cos x = \frac{1}{2}$$
$$x = \frac{\pi}{3} + n \cdot 2\pi \vee x = \frac{5\pi}{3} + n \cdot 2\pi$$

**Eksempel**

$$2 \cos(2x) = -1$$
$$\cos(2x) = -\frac{1}{2}$$
$$2x = \frac{2\pi}{3} + n \cdot 2\pi \vee 2x = \frac{4\pi}{3} + n \cdot 2\pi$$
$$x = \frac{\pi}{3} + n \cdot \pi \vee x = \frac{2\pi}{3} + n \cdot \pi$$

## Oppgave 1

Løs likningene når  $x \in [0, 2\pi >$ .

1)  $\sin x = -1$

2)  $2 \sin x - 1 = 0$

3)  $4 \sin x + 2 = 0$

4)  $2 \cos x = \sqrt{2}$

5)  $4 \cos(2x) + 2 = 0$

6)  $\sin 2x = \frac{1}{2}$

## Oppgave 2

Løs likningene.

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

2)  $\cos^2 x - 1 = 0$

3)  $2 \cos^2 x + \cos x = 0$

4)  $\tan 3x = \sqrt{3}$

5)  $\tan^2 x - 1 = 0$

### Oppgave 3

Løs likningene når  $x \in [0, 2\pi >$

1)  $\sin x(\sin x + 2) = 3$

2)  $\cos^2 x + 2 \cos x = -1$

3)  $\cos^2 x - 2 \sin^2 x = -2$

4)  $\cos^2 x - \sin^2 x = 1$

## Oppgave 4

1)  $5 \sin^2 x + 4 \sin x \cos x + \cos^2 x = 1$

2)  $4 \sin^2 x - 4\sqrt{3} \sin x \cos x + 4 \cos^2 x = 1$

3)  $2 \sin^2 x - \sin x \cos x + \cos^2 x = 1$

## Oppgave 5

Bruk kalkulator eller Geogebra til å løse disse.

1)  $\cos x = 0,4$

2)  $3 \cos x - 2 = 0$

3)  $\tan x = 6$

4)  $4 \cos 4x = 5$

5)  $3 \tan x - 4 = 0$

6)  $5 \cos x + 3 = 0$

7)  $\sin(2x + 3) = 0,7$

8)  $\sin(3x) = 0,39$

9)  $3 \tan(3x) + 18 = 0$

10)  $2 \sin x + 3 \cos x = 0$

Dette arbeidshefte :



Løsningsforslag :



21/01/24