Ekvationer och formler

Vi kan lösa ekvationer med hjälp av

* omskrivningar
* Faktorisering
* Nollproduktsmetoden
* Variabelsubstitution

Ex) Lös ekvationen

a) $4\sin x\cos x = \sqrt{3}$

$= 2\cdot \underbrace{2\sin x\cos x}_{\sin 2x} = \sqrt{3}$

$2\sin 2x = \sqrt{3}$

$\sin 2x \frac{\sqrt{3}}{2}$

$2x_1 = 60° + 360°\cdot n$

$x_1 = 30° + 180°\cdot n$

$2x_2 = 120° + 360°\cdot n$

$x_2 = 60° + 180°\cdot n$

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

$\cos x(\cos x - 1) = 0$

$\cos x = 0$ eller $\cos x - 1 = 0$

$x_1 = 90° + 360°\cdot n$

$x_2 = -90° + 360°\cdot n$

$\cos x = 1$

$x = 0° + 360°\cdot$

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

$(\sin x - 1)(\sin x + 1) = 0$

$\sin x = 1$

$x_1 = 90° + 360° \cdot n$

$\sin x = -1$

$x_2 = 270° + 360° \cdot n$

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

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

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

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

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

$\cos x = t$

$t^2 - 2t + 1 = 0$

$t = 1 \pm \sqrt{\left(\frac{2}{2}\right)^2 - 1}$

$t = 1 \pm \sqrt{0}$

$t = 1$

$\cos x = 1$

$\cos x = 1$

$x_1 = 0° + 360° \cdot n$