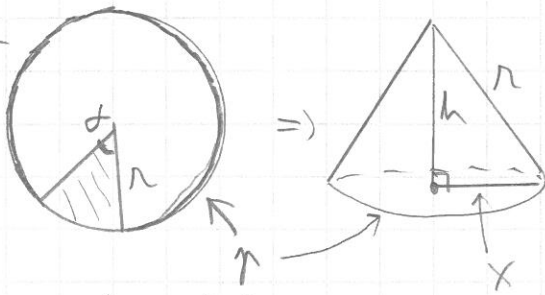


6.25



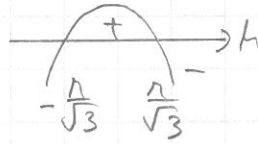
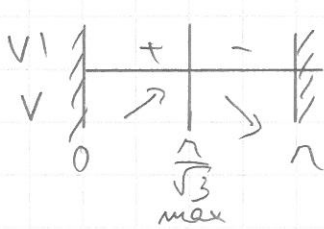
Pythagoras: $x^2 + h^2 = r^2$
 $(\Rightarrow) x^2 = r^2 - h^2$

Kontinuitätssatz:

$V(h) = \frac{1}{3} A_{\text{B}} h = \frac{1}{3} \pi x^2 h = \frac{1}{3} \pi (r^2 - h^2) h = \frac{1}{3} \pi (r^2 h - h^3)$

V jtz. je deriv. Kum $0 < h < r$

$V'(h) = \frac{1}{3} \pi (r^2 - 3h^2) = 0 \Rightarrow r^2 - 3h^2 = 0 \Rightarrow h^2 = \frac{r^2}{3} \sqrt{\quad}$



$(\Rightarrow) h = \pm \frac{r}{\sqrt{3}} \approx 0,577r$

$x^2 = r^2 - \frac{r^2}{3} = \frac{2}{3} r^2 \sqrt{\quad}$

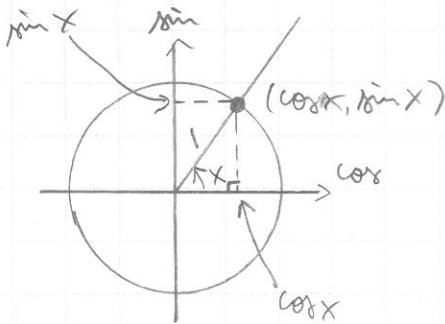
$(\Rightarrow) x = \sqrt{\frac{2}{3}} r$

$\uparrow = \frac{360^\circ - \alpha}{360^\circ} 2\pi r = 2\pi x$

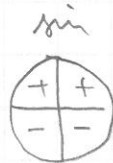
$= 2\pi \sqrt{\frac{2}{3}} r$

$(\Rightarrow) \alpha \approx 66^\circ$

8. Trigonometrie



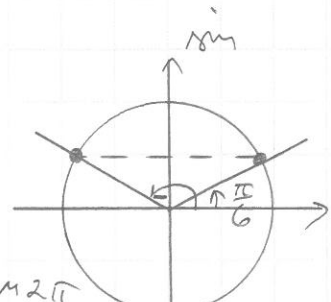
$-1 \leq \sin x \leq 1, -1 \leq \cos x \leq 1$



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

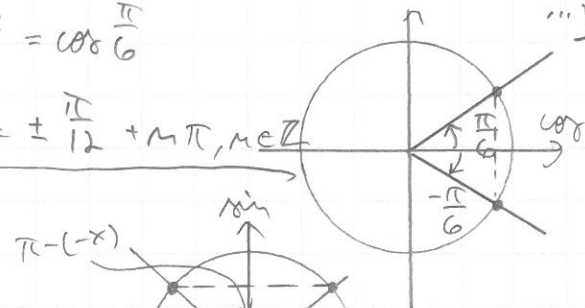
8.3 a) $2 \sin x - 1 = 0 \quad | +1 \quad | :2 \quad (\Rightarrow) \sin x = \frac{1}{2}$

$(\Rightarrow) x = \frac{\pi}{6} + M2\pi \quad \text{bzw.} \quad x = \frac{5\pi}{6} + M2\pi$



b) $2 \cos 2x = \sqrt{3} \quad | :2 \quad (\Rightarrow) \cos 2x = \frac{\sqrt{3}}{2} = \cos \frac{\pi}{6}$

$(\Rightarrow) 2x = \pm \frac{\pi}{6} + M2\pi \quad | :2 \quad (\Rightarrow) x = \pm \frac{\pi}{12} + M\pi, M \in \mathbb{Z}$



8.4 a) $\sin 5x = \sin(-x)$

$(\Rightarrow) 5x = -x + M2\pi \quad \text{bzw.} \quad 5x = \pi - (-x) + M2\pi$

$(\Rightarrow) 6x = M2\pi \quad | :6 \quad \text{bzw.} \quad 4x = \pi + M2\pi \quad | :4$

$(\Rightarrow) x = M \frac{\pi}{3} \quad \text{bzw.} \quad x = \frac{\pi}{4} + M \frac{\pi}{2}, M \in \mathbb{Z}$

