Aufgabe 3 - Serie 4 - Team 07

a) $A_{Sg} = \frac{1}{2} r^2 (\varphi - \sin\varphi)$ $A_{Leer} = \frac{1}{4} \pi r^2$

$\frac{1}{2} r^2 (\varphi - \sin\varphi) = \frac{1}{4} \pi r^2 \quad // : r^2$

$\frac{1}{2} (\varphi - \sin\varphi) = \frac{1}{4} \pi \quad // \cdot 2$

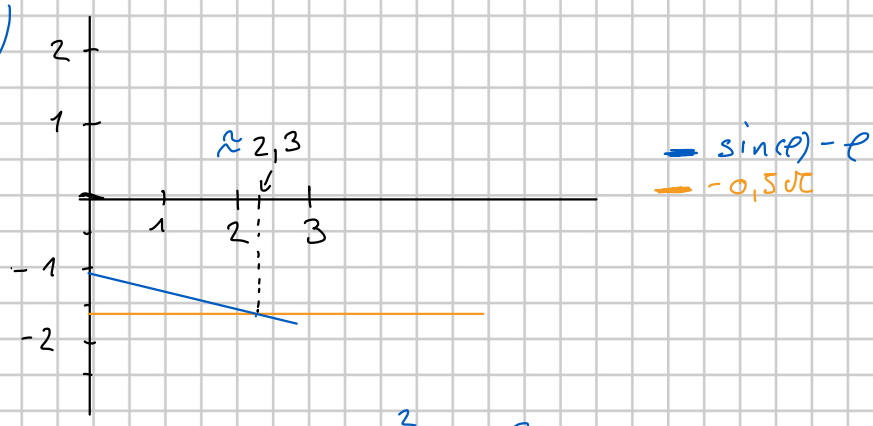
$(\varphi - \sin\varphi) = \frac{1}{2} \pi \quad // - \varphi$

$-\sin\varphi = \frac{1}{2} \pi - \varphi$

$\sin\varphi - \varphi = -\frac{1}{2} \pi$

$\varphi = \sin\varphi + \frac{1}{2} \pi$

b)



c) $(r-h)^2 + (r\sin(\varphi))^2 = r^2 \quad // V$

$h^2 - 2rh + r^2 + r^2 \cdot \sin^2(\varphi) = r^2 \quad // V$

$h^2 = 2rh - r^2 (1 + \sin^2(\varphi))$

$h = r - \sqrt{r^2 - r^2 \sin(\varphi)}$