Prüfungsbesprechung Bonustest 2

15) $\lim\limits_{x \to 0} \frac{\sin x}{x} = 1$

$\lim\limits_{x \to 0} \frac{\sin(-1 \cdot 2x)}{(-3)(-1 \cdot x)} = -\frac{1}{3}$ · $\lim\limits_{x \to 0} \left(\frac{8x-8}{4-1 \cdot x}\right) = -\frac{8}{4} = -2$

$\left(-\frac{1}{3}\right) \cdot (-2) = \frac{2}{3}$

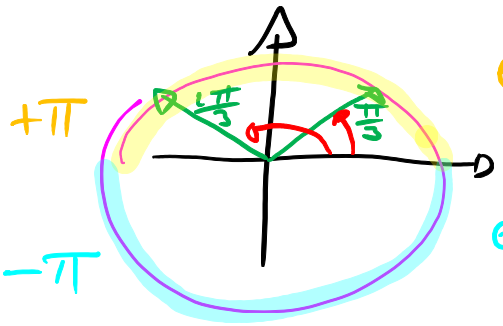
2) $\sin^2(\pi \cdot x) = \frac{3}{4}$ für alle x in Intervall $-1 \leq x \leq 1$

$\sin^2(\theta) = \frac{3}{4}$ → siehe Basisbuch Abbildung 1.34

$\sin \theta = \pm \frac{\sqrt{3}}{2}$

$\theta_1 = \frac{\pi}{3}$ $x_1 = \frac{1}{3}$

$\theta_2 = \frac{2\pi}{3}$ $x_2 = \frac{2}{3}$



$\theta_3 = -\frac{\pi}{3}$ $x_3 = -\frac{1}{3}$

$\theta_4 = \frac{-2\pi}{3}$ $x_4 = -\frac{2}{3}$

6) $y = x^3$

$y = -x^3$

$y = x$

$-x^3 + x$

$-x^3 + x + 4$

$y_T = m \cdot x + b$

$y_T = -x + b$ (da $m = -1$)

$y' = -\frac{3}{8}x^2 + \frac{1}{2} = -1$

$-\frac{3}{8}x^2 = -\frac{3}{2}$

$x^2 = 4 \quad | \sqrt{}$

$x = \pm 2$

1. Punkt $(2, 4)$

$y_{T_1} = 4 = -2 + b \quad | + 2$

$6 = b$

$y_{T_1} = -x + 6$

2. Punkt $(-2, 4)$

$y_{T_2} = 4 = 2 + b \quad | - 2$

$2 = b$

$y_{T_2} = -x + 2$