

# Stundenprotokoll: 8.11.2011

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Hausaufgabe vom 1.11.:

S. 157 Nr. 10

$$f(x) = \sqrt{25 - x^2}$$

$$\begin{aligned} \text{a) } f'(x) &= \frac{1}{2\sqrt{25-x^2}} \cdot (-2)x \\ &= -\frac{x}{\sqrt{25-x^2}} \end{aligned}$$

$$D_f = \{x \in \mathbb{R} \mid -5 \leq x \leq 5\} = [-5; 5]$$

$$D_{f'} = \{x \in \mathbb{R} \mid -5 < x < 5\} = ]-5; 5[$$

1)  $y = m \cdot x + c$

1. Tangente  $m_T = f'(3)$

$$m_T = -\frac{3}{\sqrt{25-9}} = -\frac{3}{4}$$

$$P(3|4)$$

$$y = -\frac{3}{4}x + 6\frac{1}{4}$$

$$4 = -\frac{3}{4} \cdot 3 + c$$

$$c = \frac{9}{4} + 4 = \frac{9}{4} + \frac{16}{4}$$

$$c = \frac{25}{4} = 6\frac{1}{4}$$

## 2. Normale

$$m_N = -\frac{1}{m_T} = \frac{3}{4}$$

$$m_T \cdot m_N = -1$$

$$y = \frac{4}{3}x + c$$

$$4 = \frac{4}{3} \cdot 3 + c \quad | -4$$

$$c \Rightarrow 0 = c$$

$$y = \frac{4}{3}x$$

Mathe Klausur: Mathematiksaufgabe 2

