

## Lösung zu den Aufgaben „Normalengleichungen“

1.)  $P_0(2|2) \quad m_t = f'(2)$

$$f'(x) = 3x^2 - 12x + 9 \quad f'(2) = -3$$

$$2 = \frac{1}{3} \cdot 2 + n$$

$$n = \frac{4}{3}$$

$$m_n = -\frac{1}{-3} = \frac{1}{3}$$

$$n: \underline{y = \frac{1}{3}x + \frac{4}{3}}$$

2.)  $P_0(2|2,75) \quad f'(x) = \frac{3}{4}x^2 - \frac{9}{2}x + \frac{15}{4}$

$$f'(2) = -2,25$$

$$m_n = -\frac{1}{-2,25} = \frac{4}{9}$$

$$2,75 = \frac{4}{9} \cdot 2 + n \quad n = \frac{67}{36}$$

$$n: \underline{y = \frac{4}{9}x + \frac{67}{36}}$$

3.)  $P_0(-1|7) \quad f'(x) = \frac{3}{2}x^2 - x - 4$

$$f'(-1) = -\frac{3}{2} \quad m_n = \frac{2}{3}$$

$$7 = -\frac{3}{2} \cdot (-1) + n \quad n = \frac{11}{2}$$

$$\underline{y = \frac{2}{3}x + \frac{11}{2}}$$

4.)  $P_0(1|2) \quad f'(x) = 3x^2 + 6x \quad f'(1) = 9$

$$m_n = -\frac{1}{9}$$

$$2 = -\frac{1}{9} \cdot 1 + n \quad n = \frac{19}{9}$$

$$\underline{y = -\frac{1}{9}x + \frac{19}{9}}$$

5.)  $P_0(1|0,5) \quad f'(x) = \frac{3}{2}x^2 - x - \frac{5}{2} \quad f'(1) = -2$

$$m_n = \frac{1}{2}$$

$$0,5 = \frac{1}{2} \cdot 1 + n$$

$$n = 0$$

$$\underline{y = \frac{1}{2}x}$$