

Aufgaben-Mix (1)

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1.0 Geg: $P(4,5|2)$; $Q(-1,5|6)$

1.1 $m = \frac{\Delta y}{\Delta x} = \frac{y_Q - y_P}{x_Q - x_P} = \frac{6-2}{-1,5-4,5} = \frac{4}{-6} = -\frac{2}{3}$

$t = y_P - m \cdot x_P = 2 - (-\frac{2}{3}) \cdot 4,5 = 5 \Rightarrow \underline{f(x) = -\frac{2}{3}x + 5}$

1.2 $N(7,5|0)$; $S_y(0|5)$; .. $G(\neq)$

1.3 $-\frac{2}{3}x + 5 = 0 \Leftrightarrow x = \frac{15}{2} = 7,5 \Rightarrow \underline{N(7,5|0)}$; $f(0) = 5 \Rightarrow \underline{S_y(0|5)}$

2.1 $m_g = 1$; $t = y_R - m \cdot x_R = 2 - 1 \cdot (-0,5) = 2,5 \Rightarrow \underline{g(x) = x + 2,5}$

2.2 $x + 2,5 = 0 \Leftrightarrow x = -2,5 \Rightarrow \underline{N_g(2,5|0)}$; $g(0) = 2,5 \Rightarrow \underline{S_y(0|2,5)}$

2.3 $f(x) > g(x) \Rightarrow -\frac{2}{3}x + 5 > x + 2,5 \Leftrightarrow -\frac{5}{3}x > 2,5$
 $\Leftrightarrow x < 1,5$; $B_1 =]-\infty; 1,5[$

3.1 $W_h = [0,5; 6,5[$

3.2 $S_y(0; 2,5)$; N existiert nicht

3.3 $y - 5 = 0 \Leftrightarrow y = 5$; $B_2 =]2,5; 6,5[$

4.0 $y = k(x-4)^2$

4.1 $T_1(4|0)$ in $p(x)$: $0 = k \cdot (4-4)^2 \Leftrightarrow 0 = 0$ (w) → jedes k passt

$T_2(4|3)$: $3 = k \cdot 0 \Leftrightarrow 3 = 0$ (f) \Rightarrow kein k passt

4.2 z.B. $P(2|2)$: $2 = k(2-4)^2 \Leftrightarrow 2 = 4k \Leftrightarrow k = \frac{1}{2}$

$p(x) = \frac{1}{2}(x-4)^2 = \frac{1}{2}(x^2 - 8x + 16) = \frac{1}{2}x^2 - 4x + 8$

4.3 $p(0) = \frac{1}{4}(4-4)^2 = 0$; $p(0) = 8 \Rightarrow \underline{S_y(0|8)}$

4.4 $W_p = [0; \infty[= \mathbb{R}_0^+$

4.5 $B_3 =]-\infty; 1,1[\cup]5,7; \infty[= \underline{\mathbb{R} \setminus [1,1; 5,7]}$

5.1 $W_q = [0; 3,1[$; $p(6,5) = \frac{1}{2}(4-6,5)^2 = \underline{3,125}$

5.2 $B_4 = [3; 5,7[$

5.3 $L = [3; 4[$

6.1 $Q(r)$ und $B_5 =]-4,4; -1,8[$

