LINEARE FUNKTIONEN (2)

Aufgabe 2

a) $3x + 4y = 5 \Leftrightarrow y = -\frac{3}{4}x + \frac{5}{4}$
$14x - 7y = 21 \Leftrightarrow y = 2x - 3$
$\Big\} -\frac{3}{4}x + \frac{5}{4} = 2x - 3 \ldots$

Alternativ:

$3x + 4y = 5 \quad | \cdot 7 \Leftrightarrow 21x + 28y = 35$
$14x - 7y = 21 \quad | \cdot 4 \Leftrightarrow + (56x - 28y = 84)$
$77x = 119 \Leftrightarrow x = \frac{17}{11}$ in I

$3 \cdot \frac{17}{11} + 4y = 5 \Leftrightarrow y = \frac{1}{11} \Rightarrow S\left(\frac{17}{11} \mid \frac{1}{11}\right)$

b) $A(\overset{x}{1} \mid \overset{y}{2})$; $B(\overset{x}{-3} \mid \overset{y}{4})$; $m = \frac{1-(-3)}{2-4} = -2$

$t = y - mx = 2 - (-2) \cdot 1 = 4 \Rightarrow f(x) = -2x + 4$

c) $m = \frac{1}{2}$; $t = -1 - \frac{1}{2} \cdot 3 = -\frac{5}{2} \Rightarrow f(x) = \frac{1}{2}x - \frac{5}{2}$

d) Steigung der Winkelhalbierenden d. 1. Quadranten: 1

$m = 1$; $t = 4 - 1 \cdot 3 = 1 \Rightarrow f(x) = x + 1$

e) $x + 3y = 5 \Leftrightarrow y = -\frac{1}{3}x + \frac{5}{3}$

$m = -\frac{1}{3}$ $t = -4 - \left(-\frac{1}{3}\right) \cdot 2 = -\frac{10}{3} \Rightarrow f(x) = \frac{1}{3}x - \frac{10}{3}$

Merke: Parallele Geraden haben die selbe Steigung

Aufgabe 3

A: $f_m(x) = m(x - 0) + 3 = mx + 3$

B: $f_m(x) = m(x - (-4)) + 5 = mx + 4m + 5$

C: $f_m(x) = m(x - 4) + 0 = mx - 4m$

3B)

$m = \frac{1}{2}$ und $P(3|-1)$: $f(x) = \frac{1}{2}(x-3) - 1 = \frac{1}{2}x - \frac{5}{2}$

$m = 1$ und $P(3|4)$: $f(x) = 1 \cdot (x-3) + 4 = x + 1$

$m = -\frac{1}{3}$ und $P(2|-4)$: $f(x) = -\frac{1}{3}(x-2) - 4 = -\frac{1}{3}x - \frac{10}{3}$