

Vorkurs 1SA Musterlösungen

1) a) $36a^2 - 48ay^2 + 16y^4 = (6a - 4y^2)^2$

(2 BE)

b) $18ab^2 - 8ac^2 = 2a(3b - 2c)^2$

(2 BE)

2) a) $2x^2 + 6x = 8x - 4x^2 + 6x^2$

$-2x = 0$

$x = 0$

$\Rightarrow \mathbb{L} = \{0\}$

(3 BE)

b) $(6x - 4)(x + 1) = 6x^2 + 2x - 4$

$6x^2 + 6x - 4x - 4 = 6x^2 + 2x - 4$

$0 = 0$ w.A. $\Rightarrow \mathbb{L} = \mathbb{Q}$

(4 BE)

c) $6x - 3x^2 = -3x^2 + 6x - 4$

$0 = -4$ f.A. $\Rightarrow \mathbb{L} = \{\}$

(3 BE)

3) 3.1 $m = \frac{6+3}{-2-1} = -3$ ✓, $-3 = -3 \cdot 1 + t$
 $t = 0$ ✓

$\Rightarrow g(x) = -3x$ ✓

(3 BE)

3.2 $\frac{1}{2}x + 2 = 0$ ✓
 $x = -4$ ✓

(2 BE)

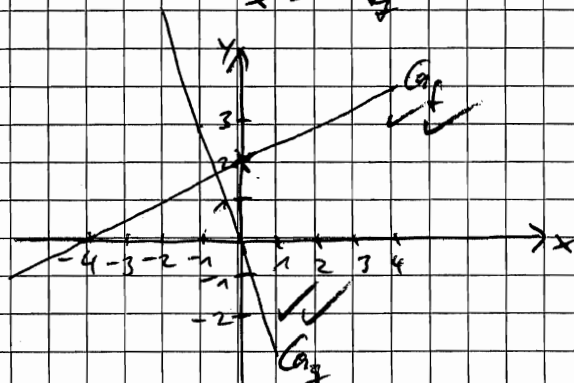
3.3 $-3x = \frac{1}{2}x + 2$ ✓, $g(-\frac{4}{5}) = \frac{12}{5}$ ✓

$-\frac{4}{5}x = 2$ SP $(-\frac{4}{5} | \frac{12}{5})$ ✓

(3 BE)

$x = -\frac{4}{5}$ ✓

3.4



(4 BE)

4) 4.1 $r_1(x) = 15x$ ✓, $r_2(x) = 20x - 10$ ✓

(4 BE)

$P_1(1|10), P_2(1,5|20)$

$m = \frac{20-10}{1,5-1} = 20$ ✓, $10 = 20 \cdot 1 + t$
 $t = -10$ ✓

4.2 $20x - 10 = 0$ ✓

$x = \frac{1}{2}$ ✓ R_2 startet um 8³⁰ in Garmisch. ✓

(3 BE)

4.3 $15x - (20x - 10) = 5$ ✓ Um 10⁰⁰ ist R_2 genau 5 km hinter R_1 . ✓
 $x = 1$ ✓

(3 BE)