

# Restloslösung

## 1. Schulaufgabe Vorlesung 2012

1.1  $4a^4 - 9b^2 = (2a^2 - 3b)(2a^2 + 3b)$  2

1.2  $3x \cdot \frac{3x-1}{2b-x} \cdot \frac{x-2b}{3x-1} = \frac{3x(x-2b)}{2b-x}$  3  
 $= \frac{-3x}{1}$

1.3  $\frac{4}{2(x+y)} - \frac{x-y}{4(x^2+2xy+y^2)} =$  3  
 $\frac{8(x+y) - (x-y)}{4(x+y)^2} = \frac{7x+9y}{4(x+y)^2}$

2.1  $8x^2 - 4x + 2x - 1 = 8x^2 + 2x - 6$  3.5  
 $-2x - 1 = 2x - 6$   
 $-4x = -5$   
 $x = +\frac{5}{4}; \mathbb{L} = \left\{ \frac{5}{4} \right\}$

2.2  $(2x-5)^2 - (x+5)^2 = 3(x-5)(x+5)$  4.5  
 $4x^2 - 20x + 25 - (x^2 + 10x + 25) = 3(x^2 - 25)$   
 $4x^2 - 20x + 25 - x^2 - 10x - 25 = 3x^2 - 75$   
 $-30x = -75$   
 $x = \frac{5}{2}; \mathbb{L} = \left\{ \frac{5}{2} \right\}$

3.1  $m = \frac{0-2}{2-(-2)} = -\frac{1}{2}$  3  
 $0 = -\frac{1}{2} \cdot 2 + t \Rightarrow t = 1; g \circ y = \frac{1}{2}x + 1$

3.2  $h \circ y = -\frac{1}{2}x + t; -3 = -\frac{1}{2} \cdot 2 + t$  2  
 $t = -2$

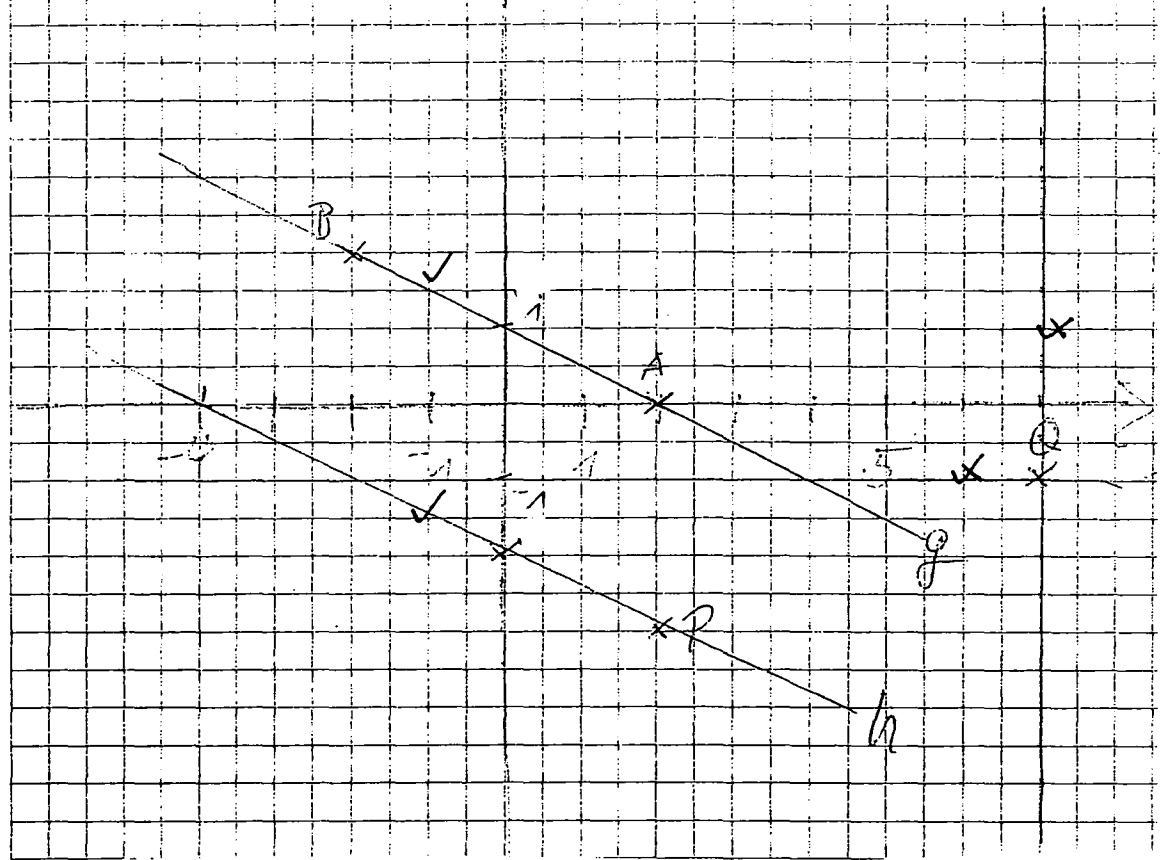
$h \circ y = -\frac{1}{2}x - 2$

3.3  $y = -1; x = 7$  2

3.4 anderes Blatt

3.4

0.1



$$4.1 \quad f(60) = 0 \checkmark \quad f(0) = 30 \checkmark \Rightarrow t = 30 \checkmark$$

$$y = mx + 30, \quad 0 = 60m + 30 \Rightarrow m = \frac{-30}{60} = -\frac{1}{2} \checkmark$$

4Bc

$$f(x) = -\frac{1}{2}x + 30, \quad f(10) = -\frac{1}{2} \cdot 10 + 30 = 25 \checkmark$$

Nach 10 Sekunden ist die Wander-

höhe noch 25 cm (Prüfung, (nur Dreisatz)  $\Rightarrow$  max 1,5 P)

$$4.2 \quad b(10) = 15, \quad b(65) = 0, \quad m = \frac{15-0}{10-65} = \frac{15}{-55}$$

$$m = -\frac{3}{11} \checkmark$$

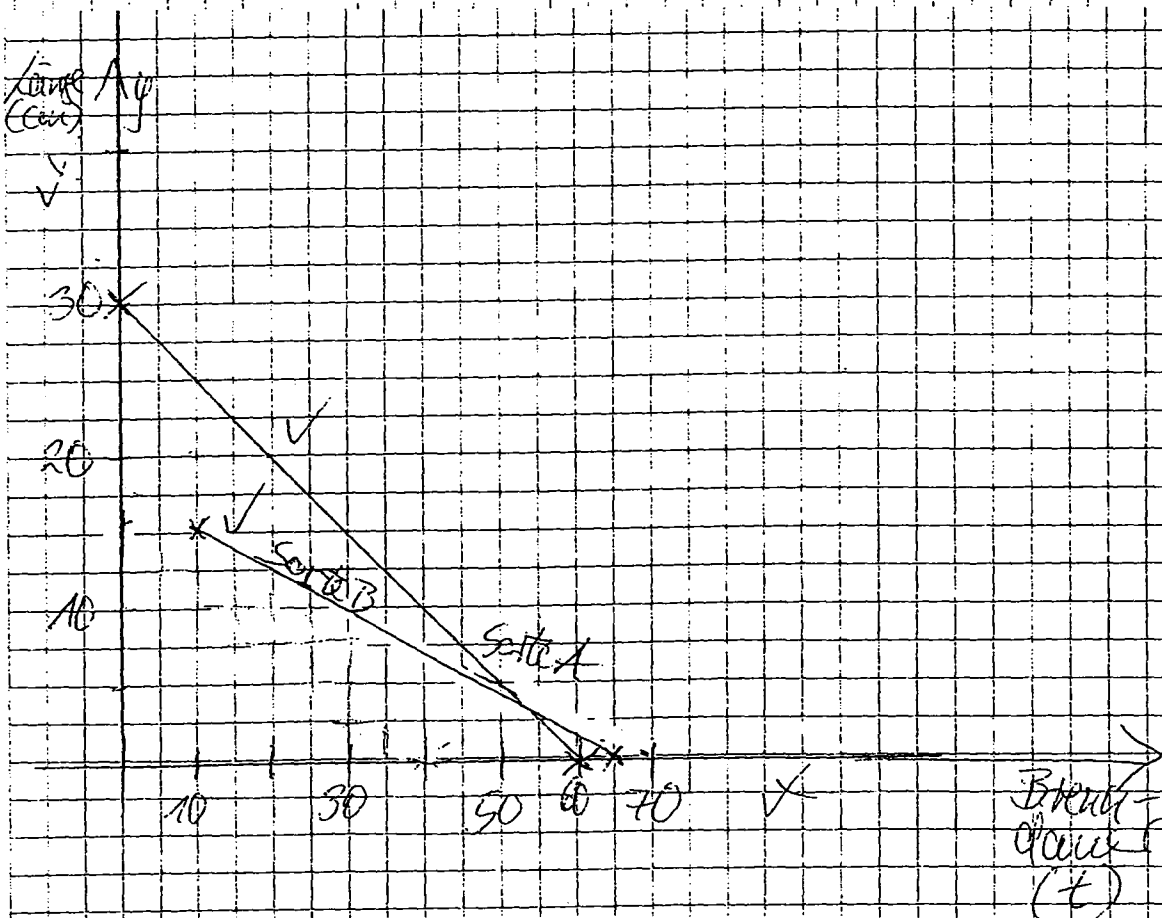
$$15 = -\frac{3}{11} \cdot 10 + t \Rightarrow t = \frac{195}{11} \checkmark (\approx 17,73)$$

$$b(x) = -\frac{3}{11}x + \frac{195}{11} \checkmark$$

$$-\frac{3}{11}x + \frac{195}{11} = -\frac{1}{2}x + 30 \checkmark$$

$$\frac{5}{22}x = \frac{135}{11}; \quad x = \underline{\underline{54}} \checkmark \text{ [Sekunden]}$$

4.3



3Bc