

# Übungsprüfung 1 Lösungen

①

1.

$$1.1 \quad 5 + (x-1)^2 = x(x-5)$$

$$5 + x^2 - 2x + 1 = x^2 - 5x \quad | -x^2$$

$$6 - 2x = -5x \quad | +2x$$

$$6 = -3x \quad | :(-3)$$

$$-2 = x$$

$$L = \{-2\}$$

$$1.2 \quad a) \quad x^7 \cdot x^{-2} \cdot x = x^{7-2+1} = x^6$$

$$b) \quad \frac{a^{n-2}}{a^{n-4}} = a^{n-2-(n-4)} = a^{n-2-n+4} = a^2$$

$$c) \quad \frac{a^2 - b^2}{a^2 + 2ab + b^2} = \frac{(a+b)(a-b)}{(a+b)^2} \stackrel{\text{kürzen}}{=} \frac{a-b}{a+b}$$

2.

$$2.1 \quad \text{Basic} \quad y = 3,5x + 1050$$

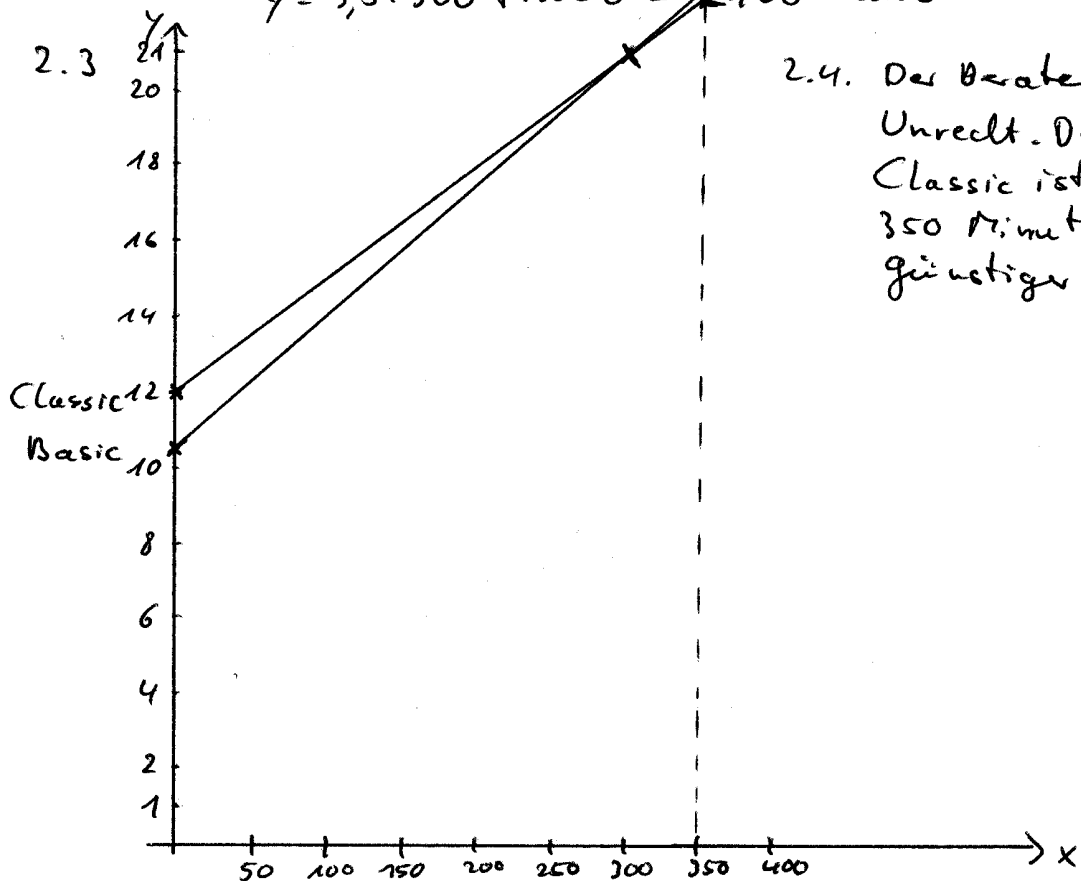
$$\text{Classic} \quad y = 3,0x + 1200$$

$$2.2 \quad 3,5x + 1050 = 3,0x + 1200 \quad | -3,0x - 1050$$

$$0,5x = 150 \quad | :0,5$$

$$x = 300 \text{ Minuten}$$

$$y = 3,5 \cdot 300 + 1050 = 2100 \text{ also } 21\text{€}$$



2.4. Der Bezahler hat Unrecht. Der Tarif Classic ist bei 350 Minuten günstiger.

3.

3.1.  $f(x) = 2x^2 - 8x + 6$

$S_y(0|6)$

$f(x) = 0$

$0 = 2x^2 - 8x + 6 \quad | :2$

$0 = x^2 - 4x + 3$

$x_{1/2} = +2 \pm \sqrt{4-3}$

$x_{1/2} = +2 \pm 1$

$x_1 = 3 \quad S_{x_1}(3|0)$

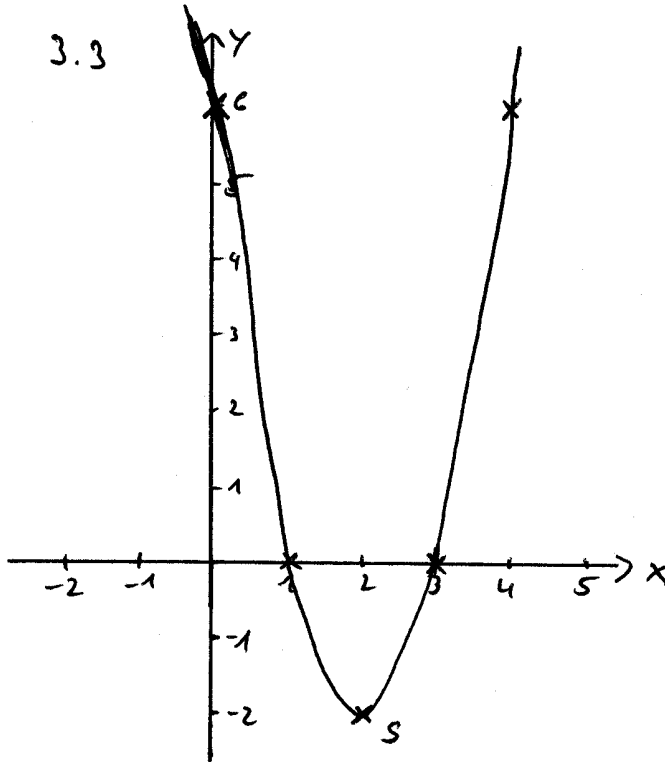
$x_2 = 1 \quad S_{x_2}(1|0)$

3.2

$x_s = +2$  aus p-q-Formel

$f(2) = 2 \cdot 2^2 - 8 \cdot 2 + 6 = -2 \quad S(2|-2)$

3.3

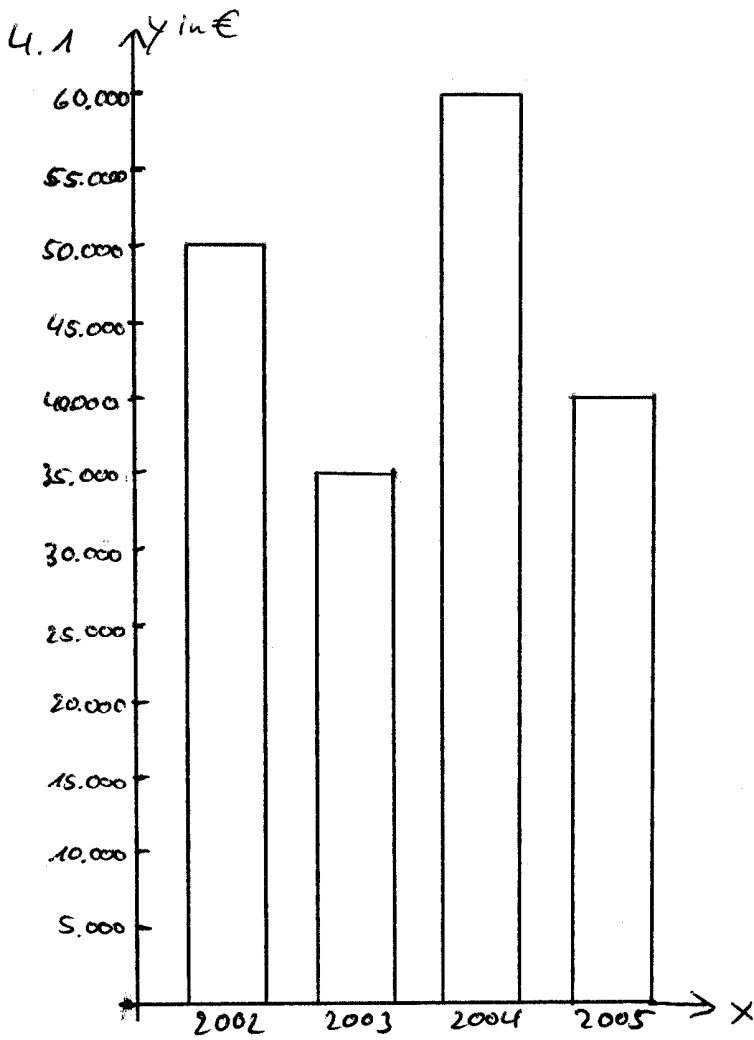


4.

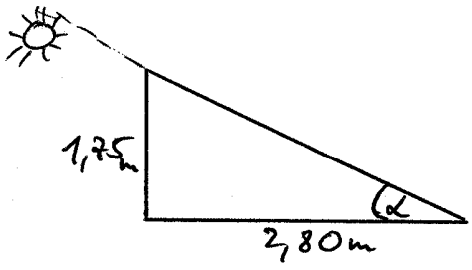
4.2 Durchschnitt  $\frac{50.000 + 35.000 + 60.000 + 40.000}{4}$

$= 46.250$

4.1 s. nächste Seite



S. 5.1

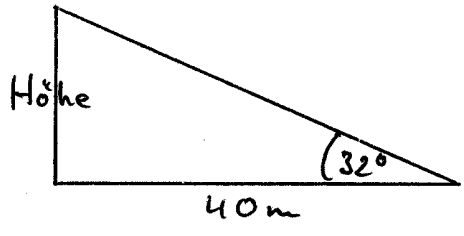


$$\tan \alpha = \frac{Gk}{Ak}$$

$$\tan \alpha = \frac{1,75}{2,80}$$

$$\alpha = \underline{\underline{32^\circ}}$$

S. 2



$$\tan \alpha = \frac{Gk}{Ak}$$

$$\tan \alpha \cdot Ak = Gk$$

$$\tan 32^\circ \cdot 40 = Gk$$

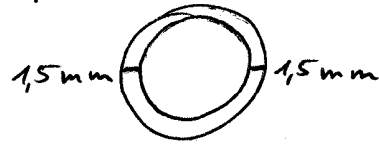
$$\underline{\underline{25\text{ m} = Gk}}$$

6.

6.1  $H = 9 \text{ cm}$   $\varnothing 7,3 \text{ cm}$

Wandstärke  $1,5 \text{ mm}$  Boden  $12 \text{ mm}$ 

$$7,3 \text{ cm} - 2 \cdot 1,5 \text{ mm} = 7 \text{ cm} \varnothing \Rightarrow r = 3,5 \text{ cm}$$



$$h = H - \text{Boden} = 9 - 1,2 = 7,8 \text{ cm}$$

$$V = \pi r^2 \cdot h \quad V = \pi \cdot 3,5^2 \cdot 7,8 = \underline{\underline{300,2 \text{ cm}^3}}$$

$$= 0,3 \text{ dm}^3$$

$$= 0,3 \text{ Liter}$$

6.2

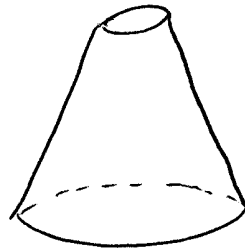
$$2 \text{ Liter} : 0,3 \text{ Liter} = \underline{\underline{6,6}} \Rightarrow 7 \text{ Gläser}$$

6.3.1

Graph I, da sich der Durchmesser nicht verändert und somit das Wasser gleichmäßig steigt.

6.3.2

Graph II



Graph III

