

## Lösungen Demoprüfung

$$1. \text{ a) } \frac{10}{y-1} \cdot \frac{y^2-2y+1}{4y-4} = \frac{10 \cdot (y-1)(y-1)}{(y-1) \cdot 4(y-1)} = \frac{5}{2} = \underline{\underline{2,5}}$$

$$b) \quad \frac{8x-3}{8} - \frac{3+2x}{3} < 0 \quad / \cdot 24$$

$$3(8x-3) - 8(3+2x) < 0$$

$$24x - 9 - 24 - 16x < 0$$

$$8x - 33 < 0 \quad /+33$$

$$8x < 33 \quad /:8$$

$$x < 4,125$$

$$\underline{\underline{L = \{1; 2; 3; 4\}}}$$

$$2. \text{ a) } \quad \frac{5}{x^2-9} - \frac{3}{x^2-6x+9} = 0$$

$$\frac{5}{(x+3)(x-3)} - \frac{3}{(x-3)(x-3)} = 0 \quad / \cdot (x+3)(x-3) \quad \underline{x \neq 3 \wedge x \neq -3}$$

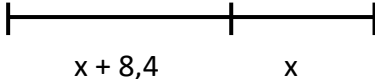
$$5(x-3) - 3(x+3) = 0$$

$$5x - 15 - 3x - 9 = 0$$

$$2x - 24 = 0 \quad /+24$$

$$2x = 24 \quad /:2$$

$$\underline{\underline{x = 12}}$$

b) 

$$3(x + 8,4) = 5x$$

$$3x + 25,2 = 5x \quad /-3x$$

$$25,2 = 2x \quad /:2$$

$$\underline{\underline{12,6 = x}}$$

Der längere Teil misst 21m.

3. a) Orangensaft:	$x$	$x+2x+2x+60 = 300$	
Mineralwasser:	$2x$	$5x+60 = 300$	/ $-60$
Coca Cola:	$2x+60$	$5x = 240$	/ $:5$
Total:	$300$	$x = 48$	

Er hat 48 Flaschen Orangensaft bestellt.

b)  $\frac{45840}{(21+24+27)} \cdot 21 = \underline{\underline{13'370Fr.}}$

4. a)  $3x + 3 \cdot 9,5 + 3 \cdot 5,8 + 19,1 = 130 : 1,045$

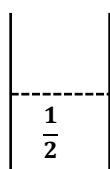
$$3x + 65 = 124,4 \quad /-65$$

$$3x = 59,4 \quad /:3$$

$$x = 19,8$$

Eine Pizza kostet 19.80 Fr.

b)



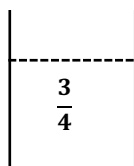
A

-16 Liter



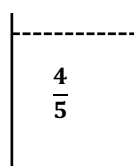
A

A  $30l + 16l = 46l \cong 50\%$   
 $\underline{\underline{92l}} \cong 100\%$



B

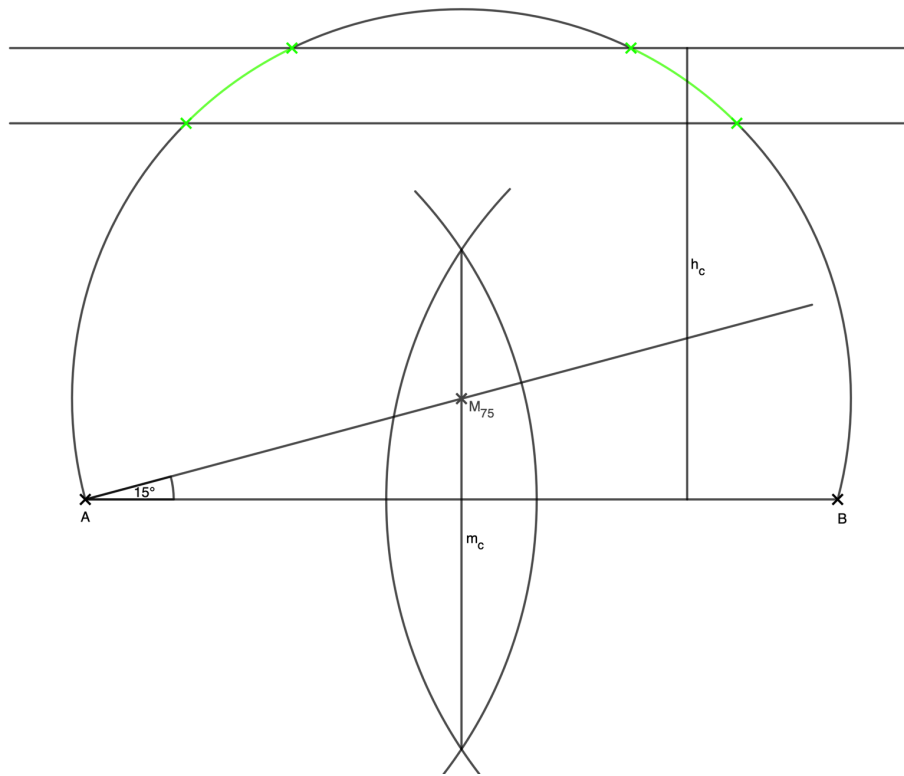
+16 Liter



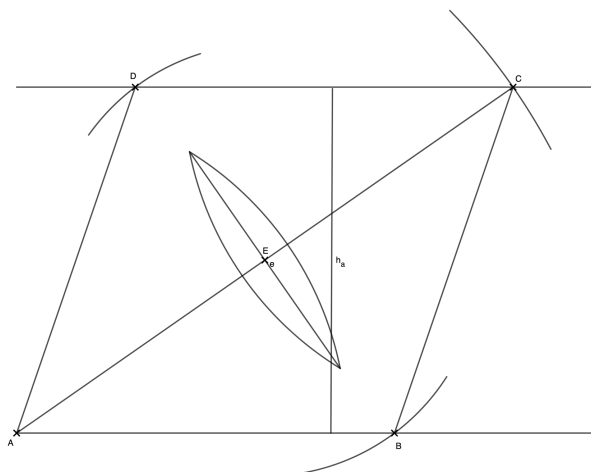
B

B  $\frac{4}{5}x - \frac{3}{4}x = 16l$   
 $\frac{16}{20}x - \frac{15}{20}x = 16l$   
 $\frac{1}{20}x = 16l$   
 $x = \underline{\underline{320l}}$

5. a) KB: 1.  $c \rightarrow A, B$   
 2. Höhenstreifen  $h_c$  (5cm und 6cm)  
 3. Ortsbogen  $75^\circ$  über  $\overline{AB}$   $\rightarrow$  Ortbereich für C

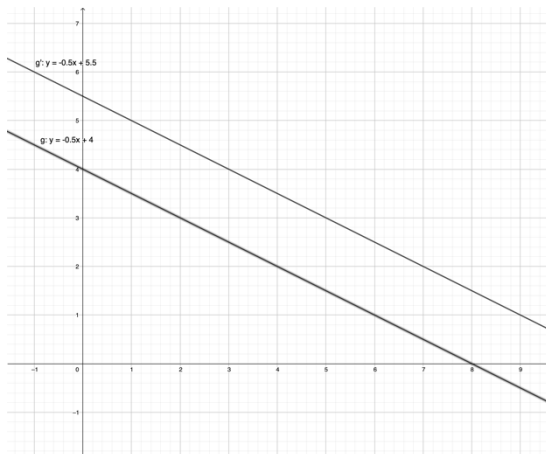


- b) KB: 1. Höhenstreifen  $h_a$   
 2.  $\odot (A, e) \rightarrow C$   
 3.  $m_e \rightarrow E$   
 4.  $\odot \left(E, \frac{f}{2}\right) \rightarrow B, D$



6. a)  $g: y = -0,5x + 4$

$g': y = -0,5x + 5,5$



b)  $g': y = -0,5x + 5,5$

A(13/24)

B(22/37)

C(-5/8)

$y = -0,5 \cdot 13 + 5,5$

$y = -0,5 \cdot 22 + 5,5$

$y = -0,5 \cdot (-5) + 5,5$

$y = -6,5 + 5,5$

$y = -11 + 5,5$

$y = 2,5 + 5,5$

$y = -1$

$y = -5,5$

$y = 8$

nein

nein

ja

7.  $\frac{2}{1+\frac{3}{x}} + \frac{\frac{(x+3)^2 - (c-3)^2 - (x+c)(x-c)}{x+c}}{\frac{2x^2-18}{2x-6}}$

$\frac{2}{1+\frac{3}{x}} = \frac{\frac{2}{1}}{\frac{x+3}{x}} = \frac{\frac{2}{1}}{\frac{x+3}{x}} = \frac{2x}{x+3}$

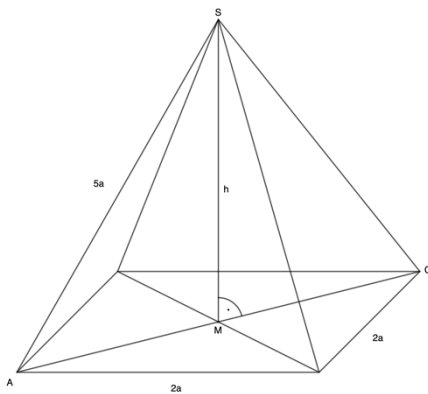
$\frac{(x+3)^2 - (c-3)^2 - (x+c)(x-c)}{x+c} = \frac{x^2+6x+9 - (c^2-6c+9) - (x^2-c^2)}{x+c} =$

$\frac{x^2+6x+9-c^2+6c-9-x^2+c^2}{(x+c)} = \frac{6x+6c}{(x+c)} = \frac{6(x+c)}{(x+c)} = 6$

$\frac{2x^2-18}{2x-6} = \frac{2(x^2-9)}{2(x-3)} = \frac{2(x+3)(x-3)}{2(x-3)} = (x+3)$

$\frac{2x}{x+3} + \frac{6}{x+3} = \frac{2x+6}{x+3} = \frac{2(x+3)}{x+3} = \underline{\underline{2}}$

8. a)

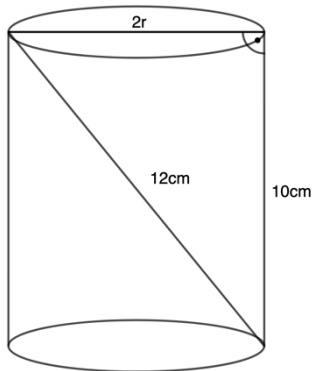


$$\begin{aligned}\overline{AC} &= \sqrt{(2a)^2 + (2a)^2} \\ &= \sqrt{4a^2 + 4a^2} = \sqrt{8a^2} = 2a\sqrt{2}\end{aligned}$$

$$\overline{AM} = a\sqrt{2}$$

$$\begin{aligned}h &= \sqrt{(5a)^2 - (a\sqrt{2})^2} \\ &= \sqrt{25a^2 - 2a^2} = \sqrt{23a^2} = \underline{\underline{a\sqrt{23}}}\end{aligned}$$

b)



$$12^2 - 10^2 = (2r)^2$$

$$44 = 4r^2 \quad /: 4$$

$$11 = r^2 \quad /\sqrt{\quad}$$

$$3,3166\dots\text{cm} = r$$

$$V = r^2\pi \cdot 10 = 110 \cdot \pi = \underline{\underline{345,58\text{cm}^3}}$$