

$$\underline{1.} \quad \frac{1}{2} + \frac{2}{3} \cdot \frac{2}{4} - \frac{1}{2} : \frac{2}{3} = \frac{1}{2} + \frac{1}{2} - \frac{1}{2} \cdot \frac{3}{2} =$$
$$1 - \frac{3}{4} = \underline{\underline{\frac{1}{4}}}$$

$$\underline{2.} \quad a.) \quad \frac{11}{10} + \frac{1}{10} = \frac{12}{10} = \underline{\underline{\frac{6}{5}}}$$

$$b.) \quad \frac{3}{4} + \frac{3}{5} = \frac{15}{20} + \frac{12}{20} = \underline{\underline{\frac{27}{20}}}$$

$$c.) \quad \frac{9}{8} - \frac{8}{9} = \frac{81}{72} - \frac{64}{72} = \underline{\underline{\frac{17}{72}}}$$

$$d.) \quad \frac{1}{12} - \frac{1}{15} = \frac{5}{60} - \frac{4}{60} = \underline{\underline{\frac{1}{60}}}$$

$$\underline{3.} \quad a.) \quad \frac{5}{18} \cdot \frac{6}{8} = \underline{\underline{\frac{1}{3}}}$$

$$b.) \quad \frac{1}{12} \cdot 0,9 = \frac{1}{12} \cdot \frac{9}{10} = \underline{\underline{\frac{3}{40}}}$$

$$c.) \quad \frac{2}{7} \cdot 2,7 = \frac{2}{7} \cdot \frac{27}{10} = \underline{\underline{\frac{27}{35}}}$$

$$d.) \quad 3 \cdot \frac{4}{5} = \frac{3}{1} \cdot \frac{4}{5} = \underline{\underline{\frac{12}{5}}}$$

$$\underline{4.} \quad a.) \quad \frac{1}{2} : \frac{2}{4} = \frac{1}{2} \cdot \frac{2}{1} = \underline{\underline{\frac{2}{3}}}$$

$$b.) \quad \frac{1}{3} : 0,2 = \frac{1}{3} : \frac{1}{5} = \frac{1}{3} \cdot \frac{5}{1} = \underline{\underline{\frac{5}{3}}}$$

$$c.) \quad 0,5 = \frac{1}{6} = \frac{1}{2} : \frac{1}{6} = \frac{1}{2} \cdot \frac{3}{1} = \underline{\underline{3}}$$

$$d.) \quad \frac{10}{9} : 8 = \frac{10}{9} : \frac{8}{1} = \frac{10}{9} \cdot \frac{1}{8} = \underline{\underline{\frac{5}{36}}}$$

5. a.) $\frac{3}{8} - x = \frac{1}{20} \quad \curvearrowright \quad x = \frac{3}{8} - \frac{1}{20} = \frac{15}{40} - \frac{2}{40} = \underline{\underline{\frac{13}{40}}}$

b.) $x \cdot \frac{2}{5} = 2,5 \quad \curvearrowright \quad x = 2,5 : \frac{2}{5} = \frac{5}{2} \cdot \frac{5}{2} = \underline{\underline{\frac{25}{4}}}$

c.) $\frac{5}{6} : x = \frac{6}{5} \quad \curvearrowright \quad x = \frac{5}{6} : \frac{6}{5} = \frac{5}{6} \cdot \frac{5}{6} = \underline{\underline{\frac{25}{36}}}$

d.) $x : \frac{7}{8} = \frac{9}{10} \quad \curvearrowright \quad x = \frac{9}{10} \cdot \frac{7}{8} = \underline{\underline{\frac{63}{80}}}$

6. a.) $-2 - 3 - 4 - 5 + 6 + 7 = \underline{\underline{-1}}$

b.) $3x - 2x - 3x + 2x = \underline{\underline{0}}$

c.) $4x - 5 - 6x + 7 + 8 = \underline{\underline{-2x + 10}}$

d.) $-2x + 3x - 4 + 5 - 6 + 7x = \underline{\underline{8x - 5}}$

7. a.) $4x + 5 - 6x = 6 - 5x - 4$
 $-2x + 5 = 2 - 5x \quad | +5x$
 $3x + 5 = 2 \quad | -5$
 $3x = -3 \quad | :3$
 $\underline{\underline{x = -1}} \quad \mathbb{L} = \underline{\underline{\{-1\}}}$

b.) $2x - 3 + 4x - 5 = -2 + 3x - 4 + 5x$
 $6x - 8 = 8x - 6 \quad | -6x$
 $-8 = 2x - 6 \quad | +6$
 $-2 = 2x \quad | :2$
 $\underline{\underline{-1 = x}} \quad \mathbb{L} = \underline{\underline{\{-1\}}}$

$$\begin{aligned}
 \text{c.) } 8x + 7 - 6x &= -5 - 4x + 3 \\
 2x + 7 &= -4x - 2 && | +4x \\
 6x + 7 &= -2 && | -7 \\
 6x &= -9 && | :6 \\
 \underline{x} &= \underline{-1,5} && \mathbb{L} = \underline{\underline{\{-1,5\}}}
 \end{aligned}$$

$$\begin{aligned}
 \text{d.) } -x - 2x - 3 - 4 &= 4 + 3 + 2 + x \\
 3x - 7 &= x + 9 && | +3x \\
 -7 &= 4x + 9 && | -9 \\
 -16 &= 4x && | :4 \\
 \underline{-4} &= \underline{x} && \mathbb{L} = \underline{\underline{\{-4\}}}
 \end{aligned}$$

$$\begin{aligned}
 \underline{8.} \quad 3x - (2y - 2) &= 3 \cdot (-3) - (2 \cdot 2 - (-1)) = \\
 -9 - (4 + 1) &= -9 - 5 = \underline{\underline{-14}}
 \end{aligned}$$

$$\begin{aligned}
 \underline{9.} \quad \text{a.) } 3(x-2) - 2(3x+2) &= 3x - 2 \\
 3x - 6 - 6x - 4 &= 3x - 2 \\
 -3x - 10 &= 3x - 2 && | +3x \\
 -10 &= 6x - 2 && | +2 \\
 -8 &= 6x && | :6 \\
 \underline{-\frac{8}{6}} &= \underline{x} \\
 \underline{x} &= \underline{-\frac{4}{3}} && \mathbb{L} = \underline{\underline{\{-\frac{4}{3}\}}}
 \end{aligned}$$

$$b.) \quad 4x(x-1) - 2x(2x+1) = 6(1-x)$$

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

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

$$\underline{0 = 6}$$

$$\underline{\mathbb{L} = \{\}} \quad (\text{"leere Menge"})$$

$$\underline{10.} \quad a.) \quad \frac{2}{3} \cdot x + 1 = x - \frac{1}{4}$$

$$\frac{2x}{3} + \frac{1}{1} = \frac{x}{1} - \frac{1}{4}$$

$$\frac{8x}{12} + \frac{12}{12} = \frac{12x}{12} - \frac{3}{12} \quad | \cdot 12$$

$$8x + 12 = 12x - 3 \quad | -8x$$

$$12 = 4x - 3 \quad | +3$$

$$15 = 4x \quad | :4$$

$$\underline{\frac{15}{4} = x}$$

$$\underline{\mathbb{L} = \left\{ \frac{15}{4} \right\}}$$

$$b.) \quad 2x - [3x - (4 + 5x)] - 6 = 0$$

$$2x - [3x - 4 - 5x] - 6 = 0$$

$$2x - 3x + 4 + 5x - 6 = 0$$

$$4x - 2 = 0 \quad | +2$$

$$4x = 2 \quad | :4$$

$$x = \frac{2}{4} = \frac{1}{2}$$

$$\underline{\underline{\mathbb{L} = \left\{ \frac{1}{2} \right\}}}$$

11. a.) $7x - (9 + 4x) < 7 + (9 - 4x)$

$$7x - 9 - 4x < 7 + 9 - 4x$$

$$3x - 9 < 16 - 4x \quad | +4x$$

$$7x - 9 < 16 \quad | +9$$

$$7x < 25 \quad | :7$$

$$\underline{x < \frac{25}{7}}$$

$$\underline{\underline{\mathbb{L} = \{ \dots; -2; -1; 0; 1; 2; 3 \}}}$$

b.) $\frac{1}{2} \cdot (3x - 4) > 5x + 6$

$$\frac{3x}{2} - 2 > 5x + 6 \quad | \cdot 2$$

$$3x - 4 > 10x + 12 \quad | -3x$$

$$-4 > 7x + 12 \quad | -12$$

$$-16 > 7x \quad | :7$$

$$\underline{\underline{-\frac{16}{7} > x}}$$

$$\underline{\underline{\mathbb{L} = \{ -3; -4; -5; \dots \}}}$$

12. $0 = 5 \cdot (2\text{cm})^2 + 4 \cdot (4\text{cm} \cdot 2\text{cm}) + (4\text{cm})^2$
 $+ (4\text{cm})^2 - (2\text{cm})^2$
 $= 5 \cdot 4\text{cm}^2 + 4 \cdot 8\text{cm}^2 + 16\text{cm}^2 + 16\text{cm}^2 - 4\text{cm}^2$
 $= 20\text{cm}^2 + 32\text{cm}^2 + 16\text{cm}^2 + 16\text{cm}^2 - 4\text{cm}^2$
 $= \underline{\underline{80\text{cm}^2}}$

13. Ein Oktaeder hat 12 Kanten.

14.

1. Zahl: $x \rightarrow 4 \cdot (x-3)$

2. Zahl: $x+36 \rightarrow 2 \cdot (x+36)$

$$\Rightarrow 4(x-3) = 2(x+36)$$

$$4x-12 = 2x+72 \quad | -2x$$

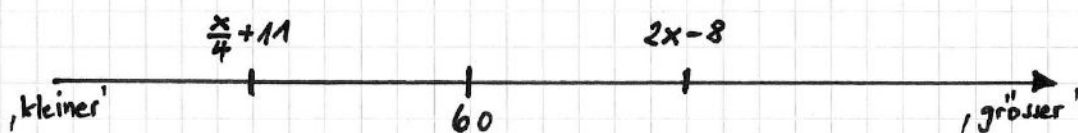
$$2x-12 = 72 \quad | +12$$

$$2x = 84 \quad | :2$$

$$\underline{x = 42}$$

1. Zahl: 42 , 2. Zahl: 78 .

15.



$$60 - \left(\frac{x}{4} + 11\right) = 2x - 8 - 60$$

$$60 - \frac{x}{4} - 11 = 2x - 68$$

$$49 - \frac{x}{4} = 2x - 68 \quad | \cdot 4$$

$$196 - x = 8x - 272 \quad | +x$$

$$196 = 9x - 272 \quad | +272$$

$$468 = 9x \quad | :9$$

$$\underline{52 = x}$$

Zahl: 52 .

16.

Annahme: Weglänge = 36 km

⇒ Rauffahren: 12 km $\hat{=}$ 1h

36 km $\hat{=}$ 3h

⇒ Rauf- und

Runterfahren: 18 km $\hat{=}$ 1h

72 km $\hat{=}$ 4h

⇒ Runterfahren:

36 km $\hat{=}$ 1h

⇒ Durchschnittsgeschwindigkeit

kein Runterfahren: $36 \frac{\text{km}}{\text{h}}$

17.

a.) 40'000

b.) 0,003

c.) 400

d.) 0,000000390625

e.) -3'000

f.) 400

g.) 0,000000390625

h.) 3'000

i.) 200

j.) 2'560'000

k.) 0,003

l.) 0,02

18.

a.) $10^8 = 100'000'000$

b.) $10^{-8} = 0,00000001$

c.) $10^{16} = 10'000'000'000'000'000$

d.) $10^{-16} = 0,000000000000000001$

e.) $10^8 = 100'000'000$

f.) $10^{-16} = 0,000000000000000001$

19.

a.) 10^{13}

b.) 10^{-10}

c.) 10^0

d.) 10^{-4}

e.) 10^2

f.) 10^{-5}

20.

$$W = 768 \text{ Fr.}$$

$$p\% = 120\%$$

$$G = \frac{W}{p\%} = \frac{720 \text{ Fr.}}{1,2} = \underline{\underline{600 \text{ Fr.}}}$$

21.

$$W = 645 \text{ Fr.}$$

$$p\% = 2\%$$

$$G = \frac{W}{p\%} = \frac{645 \text{ Fr.}}{0,02} = \underline{\underline{32'250 \text{ Fr.}}}$$

$$\Rightarrow 32'250 \text{ Fr.} - 645 \text{ Fr.} = \underline{\underline{31'605 \text{ Fr.}}}$$

22.

$$W = 168 \text{ Fr.}$$

$$p\% = 40\%$$

$$G = \frac{W}{p\%} = \frac{168 \text{ Fr.}}{0,4} = \underline{\underline{420 \text{ Fr.}}}$$

$$\Rightarrow 420 \text{ Fr.} + 168 \text{ Fr.} = \underline{\underline{588 \text{ Fr.}}}$$

23.

$$K = 14'000 \text{ Fr.}$$

$$p\% = 1,5\%$$

$$t = 146 \text{ d}$$

$$Z_t = K \cdot p\% \cdot \frac{t}{360} = 14'000 \text{ Fr.} \cdot 0,015 \cdot \frac{146}{360}$$
$$\approx \underline{\underline{85,17 \text{ Fr.}}}$$

24.

$$K = 50'000 \text{ ₺.}$$

$$Z_t = 222 \text{ ₺.}$$

$$t = 100 \text{ d}$$

$$p\% = \frac{Z_t \cdot 360}{K \cdot t} = \frac{222 \text{ ₺} \cdot 360}{(50'000 \text{ ₺} \cdot 100)} \approx 0,016 = \underline{\underline{1,6\%}}$$

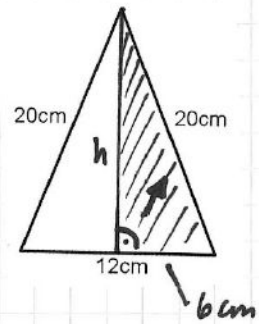
25.

Pythagoras:

$$20^2 = h^2 + 6^2$$

$$\leadsto h^2 = 20^2 - 6^2 \quad | \sqrt{\quad}$$

$$h = \sqrt{20^2 - 6^2} \\ = \sqrt{400 - 36} = \underline{\underline{\sqrt{364} \text{ cm}}}$$



$$\Rightarrow A = \frac{g \cdot h}{2} = \frac{12 \text{ cm} \cdot \sqrt{364} \text{ cm}}{2} = 6 \cdot \sqrt{364} \text{ cm}^2 \approx \underline{\underline{114,47 \text{ cm}^2}}$$

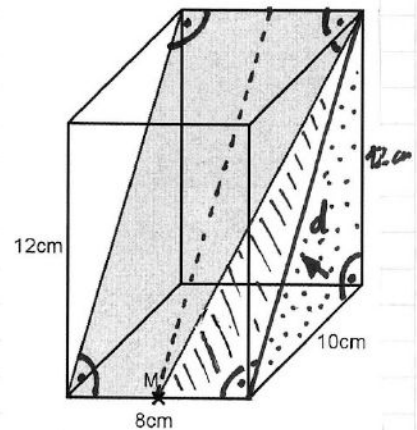
26.

$$A = 8 \text{ cm} \cdot d \cdot \frac{3}{4}$$

$$= 8 \text{ cm} \cdot \sqrt{244} \text{ cm} \cdot \frac{3}{4}$$

$$= 6 \cdot \sqrt{244} \text{ cm}^2$$

$$\approx \underline{\underline{93,72 \text{ cm}^2}}$$



Pythagoras:

$$d^2 = 10^2 + 12^2 \quad | \sqrt{\quad}$$

$$d = \sqrt{10^2 + 12^2}$$

$$= \sqrt{100 + 144}$$

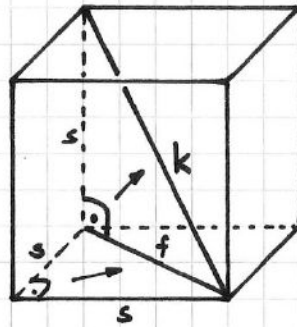
$$= \underline{\underline{\sqrt{244} \text{ cm}}}$$

27.

Pythagoras:

$$\textcircled{1} \quad f^2 = s^2 + s^2$$

$$\begin{aligned} \textcircled{2} \quad k^2 &= f^2 + s^2 \\ &= s^2 + s^2 + s^2 \\ &= 3s^2 \end{aligned}$$



$$\Rightarrow 1,25^2 = 3 \cdot s^2 \quad | : 3$$

$$\frac{1,25^2}{3} = s^2 \quad |\sqrt{\quad}$$

$$s = \sqrt{\frac{1,25^2}{3}} \text{ m} \quad \hat{=} \underline{0,72 \text{ m}}$$

$$\Rightarrow V = s^3 \quad \hat{=} \underline{\underline{0,376 \text{ m}^3}}$$

28.

a.) $\frac{6}{x^{18}}$

b.) $0,4 \cdot x^8 \cdot y^2$

c.) $12xy$

d.) $\frac{1}{6x^5}$

e.) $\frac{1}{2}$

f.) $12y^2$

29.

Länge Seite: $\sqrt{5} \cdot 8 \text{ cm}$

Pythagoras: $(\sqrt{5} \cdot 8)^2 = (\sqrt{6} \cdot 3)^2 + (\sqrt{7} \cdot 6)^2$

$$320 = 54 + 294$$

$$\underline{\underline{320 \neq 348}}$$

\Rightarrow Das Dreieck ist nicht rechtwinklig.

30. Längste kite: $6 \cdot \sqrt{5}$ cm

Pythagoras: $(6 \cdot \sqrt{5})^2 = x^2 + (5 \cdot \sqrt{6})^2$

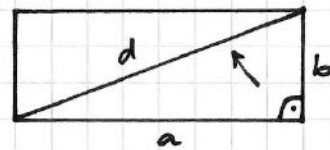
$$\begin{aligned} \Rightarrow x &= \sqrt{(6 \cdot \sqrt{5})^2 - (5 \cdot \sqrt{6})^2} \\ &= \sqrt{180 - 150} \\ &= \sqrt{30} \text{ cm} \hat{=} \underline{\underline{5,5 \text{ cm}}} \end{aligned}$$

31. Pythagoras:

$$d^2 = a^2 + b^2$$

$$\Rightarrow a = \sqrt{d^2 - b^2}$$

$$= \sqrt{39^2 - 15^2} = \sqrt{1521 - 225} = \sqrt{1296} = \underline{\underline{36 \text{ cm}}}$$



$$\Rightarrow A = a \cdot b = 36 \text{ cm} \cdot 15 \text{ cm} = \underline{\underline{540 \text{ cm}^2}}$$

32. $A = r^2 \cdot \pi \quad \Rightarrow \quad r = \sqrt{\frac{A}{\pi}} = \sqrt{\frac{1,8 \text{ m}^2}{\pi}} \hat{=} \underline{\underline{0,76 \text{ m}}}$

$$\Rightarrow u = 2 \cdot r \cdot \pi \hat{=} \underline{\underline{4,8 \text{ cm}}}$$

33. $u = 2 \cdot r \cdot \pi \quad \Rightarrow \quad r = \frac{u}{(2 \cdot \pi)}$

$$= \frac{1,8 \text{ m}}{(2 \cdot \pi)} \hat{=} \underline{\underline{0,29 \text{ m}}}$$

$$\Rightarrow A = r^2 \cdot \pi \hat{=} \underline{\underline{0,2578 \text{ m}^2}}$$

34. $A_{\text{Kreis}} = r^2 \cdot \pi \quad \leadsto \quad r = \sqrt{\frac{A}{\pi}} = \sqrt{\frac{700 \text{ cm}^2}{\pi}}$
 $\hat{=} \underline{14,9 \text{ cm}}$

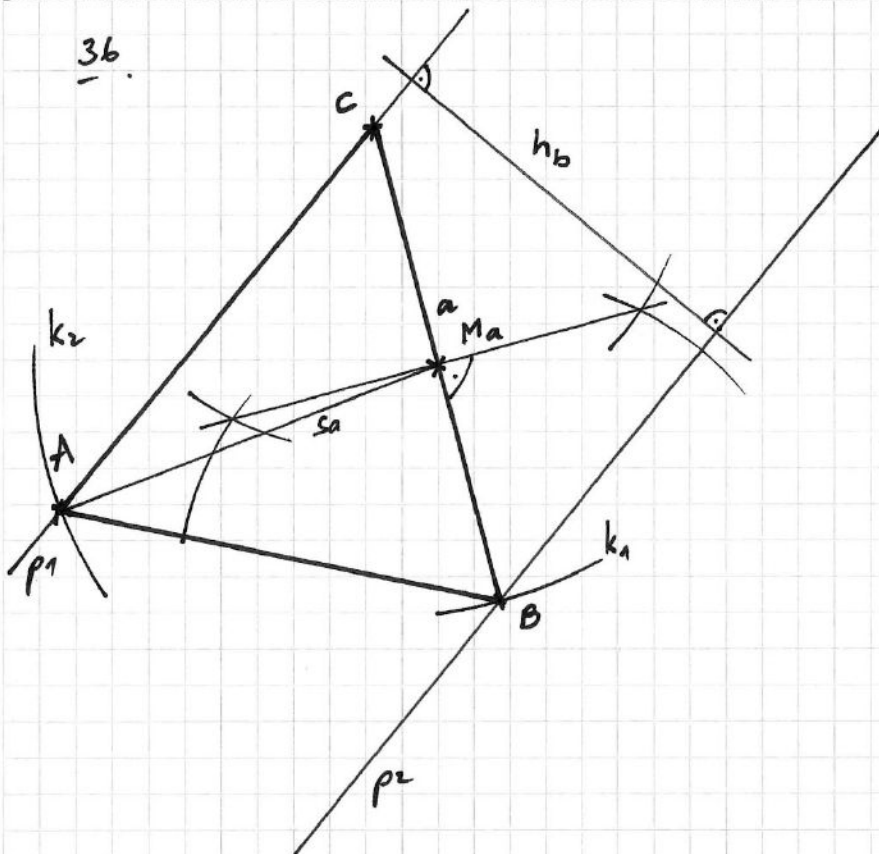
$\Rightarrow u_{\text{Kreis}} = 2 \cdot r \cdot \pi \hat{=} \underline{93,8 \text{ cm}}$

$\Rightarrow u_R = 2 \cdot (a+b) \quad \leadsto \quad b = \frac{u_R}{2} - a$
 $= \frac{u_R}{2} - 36 \text{ cm} \hat{=} \underline{\underline{10,9 \text{ cm}}}$

35. $A_1 = r^2 \cdot \pi = (7,5 \text{ cm})^2 \cdot \pi \hat{=} \underline{176,7 \text{ cm}^2}$

$A_2 = s^2 = (15 \text{ cm})^2 = \underline{225 \text{ cm}^2}$

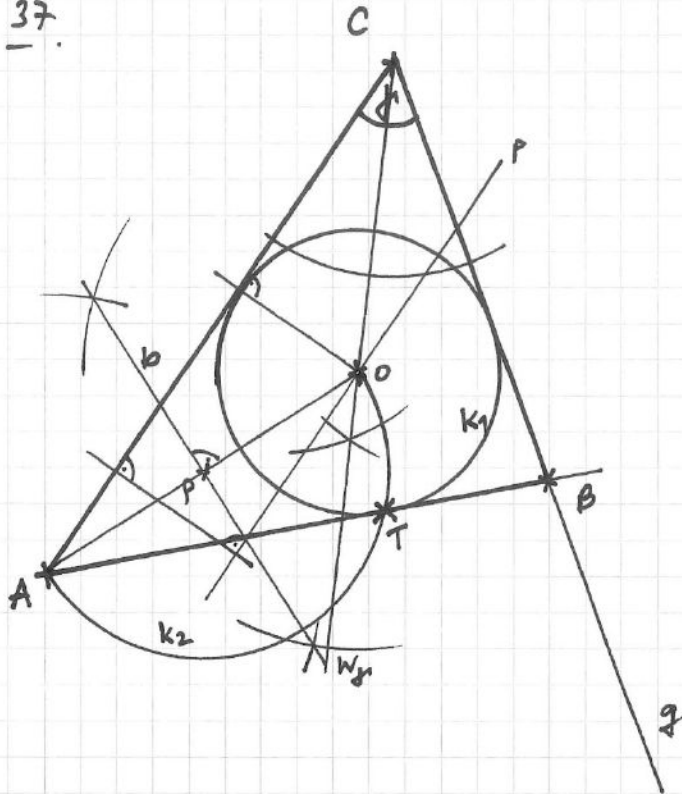
$\Rightarrow \left. \begin{array}{l} A_2 \hat{=} 100\% \\ A_1 \hat{=} \underline{\underline{\approx 78,5\%}} \end{array} \right\} A_1 \text{ ist um } \underline{\underline{21,5\%}}$
 kleiner als A_2 .



Konstruktionsbericht:

1. $p_1 \parallel p_2$ im Abstand h_b
2. $C \in p_1$
3. $k_1(C, a) \cap p_2 = \{B\}$
4. $k_2(M_a, s_a) \cap p_1 = \{A\}$

37.



Konstruktionsbericht:

1. $b = \overline{AC}$
2. $\perp g$ in C an $b \rightarrow p$
3. W_g
4. $p \parallel b$ im Abstand p
5. $W_g \cap p = \{O\}$
6. $k_1(O, r)$
7. Thaleskreis k_2 über \overline{AB}
8. $k_1 \cap k_2 = \{T\}$
9. $AT \cap g = \{B\}$

38.

x	4 : x	x : 4	-1 : x	x : (-2)	8 : (-x)	(-x) : 5	-5 : (-x)	12 · x	-6 · x	2 · (-x)	-3 · (-x)
-1	-4	$-\frac{1}{4}$	1	$\frac{1}{2}$	8	$\frac{1}{5}$	-5	-12	6	2	-3
0,2	20	$\frac{1}{20}$	-5	$-\frac{1}{10}$	-40	$-\frac{1}{25}$	25	2,4	-1,2	-0,4	0,6
$-\frac{3}{4}$	$-\frac{16}{3}$	$-\frac{3}{16}$	$\frac{4}{3}$	$\frac{3}{8}$	$\frac{32}{3}$	$\frac{3}{20}$	$-\frac{20}{3}$	-9	$\frac{9}{2}$	$\frac{3}{2}$	$-\frac{9}{4}$

39.

x	y	z	$x \cdot (y+z)$	$-z \cdot (x-2y)$
-4	3	-2	$-4 \cdot (3+(-2)) = -4 \cdot 1 = \underline{\underline{-4}}$	$-(-2) \cdot (-4-2 \cdot 3) = 2 \cdot (-10) = \underline{\underline{-20}}$
2	-3	4	$2 \cdot (-3+4) = 2 \cdot 1 = \underline{\underline{2}}$	$-4 \cdot (2-2 \cdot (-3)) = -4 \cdot (2+6) = \underline{\underline{-32}}$

40.

$$a.) \quad 3x^2 - 4x + 5 - 6x^2 + 7x - 8 - 9x^2 - 10x + 11 = \\ \underline{\underline{-12x^2 - 7x + 8}}$$

$$b.) \quad 6ab - 9a^2 - 6ab + 4b^3 - 6ab - 9a^2 = \\ \underline{\underline{-6ab - 18a^2 + 4b^3}}$$

41.

$$a.) \quad (a+6)(a+6) = \underline{\underline{a^2 + 12a + 36}}$$

$$b.) \quad (2a-3)(2a-3) = \underline{\underline{4a^2 - 12a + 9}}$$

$$c.) \quad (4a+3b)(4a+3b) = \underline{\underline{16a^2 + 24ab + 9b^2}}$$

$$d.) \quad (1-ab)(1-ab) = \underline{\underline{1 - 2ab + a^2b^2}}$$

$$e.) \quad \left(\frac{a}{4} + b\right)\left(\frac{a}{4} + b\right) = \underline{\underline{\frac{a^2}{16} + \frac{ab}{2} + b^2}}$$

$$f.) \quad \left(\frac{a}{2} - \frac{b}{3}\right)\left(\frac{a}{2} - \frac{b}{3}\right) = \underline{\underline{\frac{a^2}{4} - \frac{ab}{3} + \frac{b^2}{9}}}$$

42.

$$a.) \quad x^2 - y^2 = \underline{\underline{(x+y)(x-y)}}$$

$$b.) \quad x^2 + 16x + 8 = \text{nicht zerlegbar}$$

$$c.) \quad x^2 - 2xy + y^2 = \underline{\underline{(x-y)(x-y)}}$$

$$d.) \quad \frac{x^2}{4} - 2x + 4 = \underline{\underline{\left(\frac{x}{2} - 2\right)\left(\frac{x}{2} - 2\right)}}$$

$$e.) \quad x^{16} - 16 = \underline{\underline{(x^8 + 4)(x^8 - 4)}}$$

$$f.) \quad 1 + 0,2x + 0,01x^2 = \underline{\underline{(1 + 0,1x)(1 + 0,1x)}}$$

43. a.) $(x+1)(x-2) - 3(x-4) + 5(x+6) =$
 $x^2 - x - 2 - 3x + 12 + 5x + 30 =$
 $x^2 + x + 40$

b.) $2x(3-2x) - (3x-2)(3x+2) + 3(2x+3)(2x-3) =$
 $6x - 4x^2 - [9x^2 - 4] + 3 \cdot [4x^2 - 9] =$
 $6x - 4x^2 - 9x^2 + 4 + 12x^2 - 27 =$
 $6x - x^2 - 23$

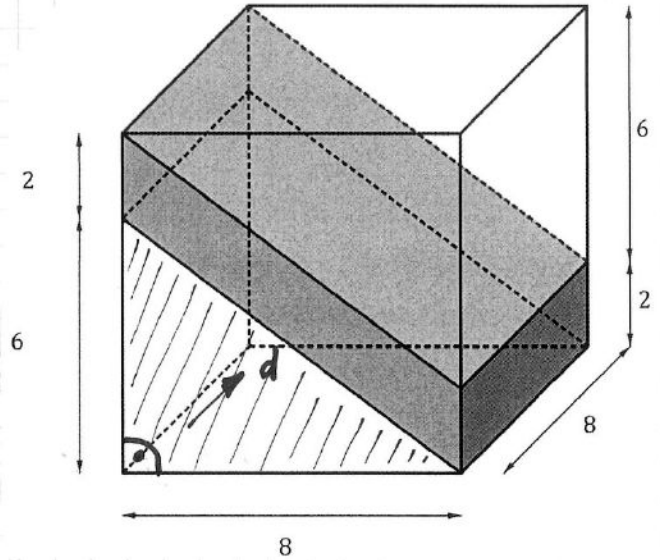
44. $V = G \cdot h = r^2 \cdot \pi \cdot h$ $u = 2 \cdot r \cdot \pi$
 $= r^2 \cdot \pi \cdot 20 \text{ cm}$ $\leadsto r = \frac{u}{(2 \cdot \pi)} = \frac{40 \text{ cm}}{(2 \cdot \pi)}$
 $\hat{=} \underline{\underline{2'546,479 \text{ cm}^3}}$ $\hat{=} \underline{\underline{6,4 \text{ cm}}}$

45. $1 \text{ L} = 1 \text{ dm}^3 = \underline{\underline{1'000 \text{ cm}^3}}$
 $\Rightarrow G = \frac{V}{h} = \frac{1'000 \text{ cm}^3}{10 \text{ cm}} = \underline{\underline{100 \text{ cm}^2}}$
 $\Rightarrow G = r^2 \cdot \pi \quad \leadsto \quad r = \sqrt{\frac{G}{\pi}} = \sqrt{\frac{100 \text{ cm}^2}{\pi}} \hat{=} \underline{\underline{5,6 \text{ cm}}}$
 $\Rightarrow u = 2 \cdot r \cdot \pi \hat{=} \underline{\underline{35,4 \text{ cm}}}$
 $\Rightarrow M = u \cdot h = u \cdot 10 \text{ cm} \hat{=} \underline{\underline{354,49 \text{ cm}^2}}$

46.

a.) $V = 8 \cdot 8 \cdot 8 - 8 \cdot 8 \cdot 6$
 $= 512 - 384 = \underline{\underline{128}}$

b.) $O =$
 $2 \cdot (10 \cdot 8 +$
 $8 \cdot 2 +$
 $8 \cdot 8 - 8 \cdot 6)$
 $= 2 \cdot (80 +$
 $16 +$
 $64 - 48)$
 $= 2 \cdot 112 = \underline{\underline{224}}$



$$d = \sqrt{8^2 + 6^2} = \sqrt{64 + 36}$$
$$= \sqrt{100} = \underline{10}$$

c.) $k = 4 \cdot (10 + 8 + 2) = \underline{\underline{80}}$

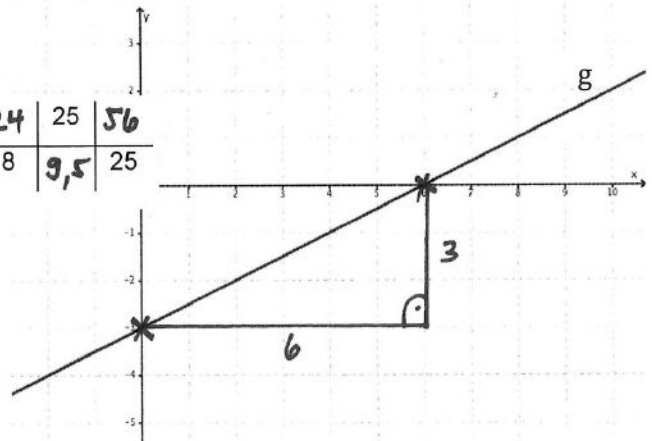
47.

a.) $\frac{3}{6} = \frac{1}{2} = \underline{\underline{0,5}}$

b.)

x	-10	-14	-6	-6	8	24	25	56
y	-8	-10	-6	-6	1	8	9,5	25

c.) $y = 0,5 \cdot x - 3$



48. a.) $\frac{2}{6} = \underline{\underline{\frac{1}{3}}}$

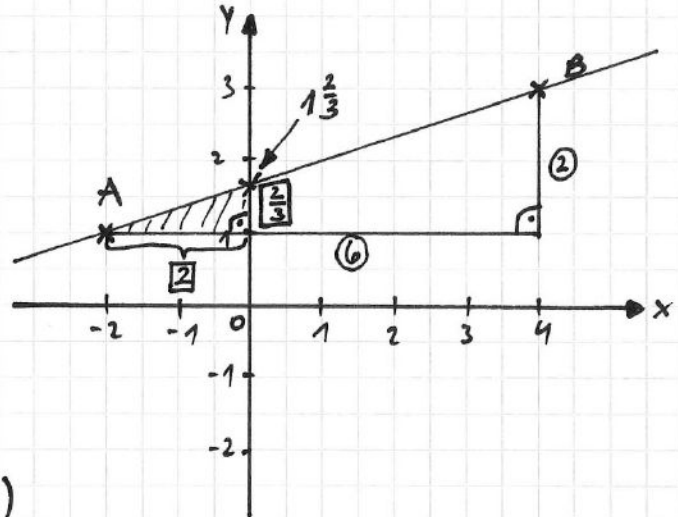
b.) $y = \frac{1}{3} \cdot x + 1\frac{1}{3}$

c.) $0 = \frac{x}{3} + \frac{4}{3} \quad | \cdot 3$

$0 = x + 4 \quad | -4$

$-4 = x$

$\Rightarrow \underline{\underline{P(-4|0)}}$



49. $7,8 \text{ g} \hat{=} 1 \text{ cm}^3$

$140'400 \text{ g} \hat{=} 18'000 \text{ cm}^3$

$\Rightarrow h = \frac{V}{G} = \frac{V}{a \cdot b} = \frac{18'000 \text{ cm}^3}{(400 \text{ cm} \cdot 150 \text{ cm})} = \underline{\underline{0,3 \text{ cm}}}$

50. $19,3 \text{ g} \hat{=} 1 \text{ cm}^3$

$71'000 \text{ g} \hat{=} \underline{\underline{\sim 3'678,8 \text{ cm}^3}}$

$\Rightarrow V \hat{=} 3'678,8 \text{ cm}^3 = s^3$

$\rightarrow s = \sqrt[3]{V} \hat{=} \underline{\underline{15,4 \text{ cm}}}$

51. $72 \text{ km} \hat{=} 60 \text{ min.}$

$30 \text{ km} \hat{=} 25 \text{ min.}$

52.

$$400 \text{ m} \stackrel{\wedge}{=} 43,18 \text{ s}$$

$$\sim 33'349 \text{ m} \stackrel{\wedge}{=} 3'600 \text{ s}$$

$$\Rightarrow \text{Geschwindigkeit: } \underline{\underline{\sim 33,3 \frac{\text{km}}{\text{h}}}}$$

53.

a.) $2a^2b^3 \cdot (9a^4 - 16b + 28b^2)$

b.) $5x^2 \cdot (x^2 + 3x + 2) = \underline{\underline{5x^2 \cdot (x+2)(x+1)}}$

c.) $x \cdot (y-4) + 1 \cdot (y-4) = \underline{\underline{(x+1)(y-4)}}$

d.) $(x-12) \cdot (x+3)$

e.) $(x-6) \cdot (x-8)$

f.) nicht zerlegbar

g.) $(x+4) \cdot (x-18)$

h.) $(x+8) \cdot (x-5)$