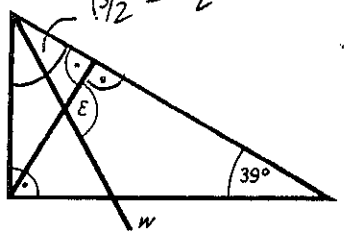
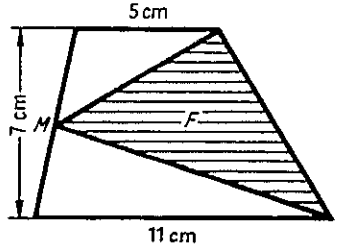
Q: Quadrat, O: Fußpunkt eines gezeichneten Kreises, W: Winkelhalbierende

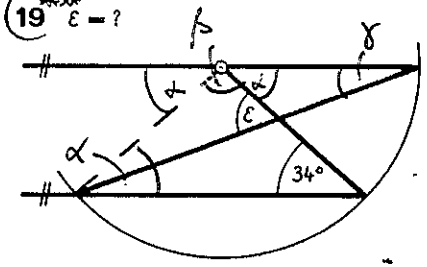
17 * $\varepsilon = ?$



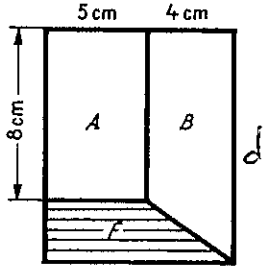
18 ** $F = ?$



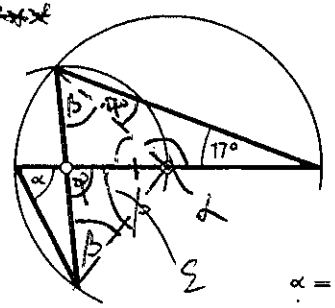
19 ** $\varepsilon = ?$



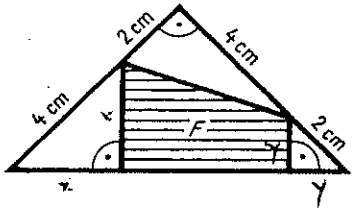
20 $A = B$, $F = ?$



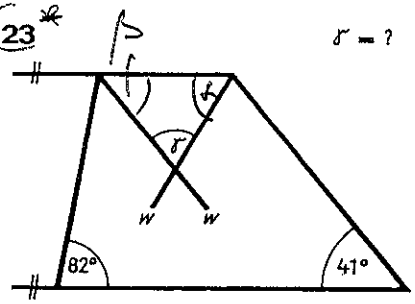
21 ***



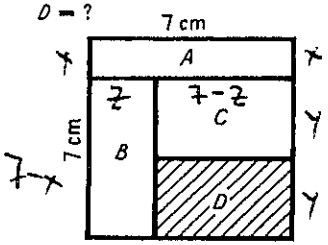
22 ** $F = ?$



23 * $\gamma = ?$



24 *Die Flächenstücke A, B, C, D haben gleichen Umfang* $D = ?$



17: $\varepsilon = 180° - 64.5° = \underline{\underline{115.5°}}$

18: $\left(\frac{5+11}{2}\right) \cdot 7 - \frac{5 \cdot 3.5}{2} - \frac{11 \cdot 3.5}{2} = \underline{\underline{28\,cm^2}}$

19: $\alpha = 34°$, $\beta = 112°$, $\gamma = \frac{180° - \alpha - \beta}{2} = 17°$, $\varepsilon = 180° - \beta - \gamma = \underline{\underline{51°}}$

20: $A = 40\,cm^2 = B = \left(\frac{8+d}{2}\right) \cdot 4 \quad d = 12\,cm$

$F = \left(\frac{5+9}{2}\right) \cdot 4 = \underline{\underline{28\,cm^2}}$

21: $\alpha = 146°$, $\beta = 34°$, $\Sigma = 180° - 3\beta = 78°$

$\varphi = 180° - \beta - \Sigma = 68°$, $\alpha = \frac{180° - \varepsilon}{2} = \underline{\underline{51°}}$

22: $4 = \sqrt{x^2 + x^2}$, $x = \sqrt{8}$

$2 = \sqrt{y^2 + y^2}$, $y = \sqrt{2}$

$F = \frac{6 \times 6}{2} - \frac{2 \times 4}{2} - \frac{\sqrt{8} \cdot \sqrt{8}}{2} - \frac{\sqrt{2} \cdot \sqrt{2}}{2} = \underline{\underline{9\,cm^2}}$

23: $\alpha = \frac{180° - 41°}{2} = 69.5°$

$\beta = \frac{180° - 82°}{2} = 49°$

$\gamma = 180° - \alpha - \beta = \underline{\underline{61.5°}}$

24: I $\quad 14 + 2(7 - 2y) = 2y + 2(7 - z)$

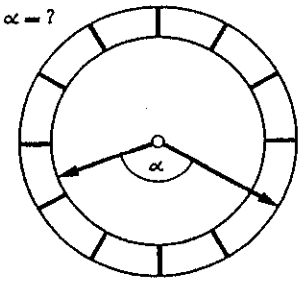
II $\quad 14 + 2(7 - 2y) = 2 \cdot 2y + 2z$

I: $z = 3y - 7$ $\qquad$ II: $y = 7 - 2z$

$z = 2$, $y = 3$, $x = 1$

$D = 3 \cdot 5 = \underline{\underline{15\,cm^2}}$

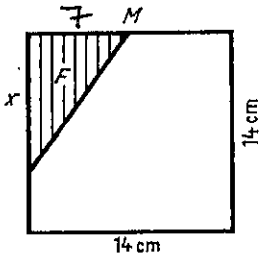
25 $\alpha = ?$



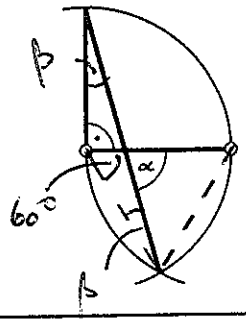
26 *Fläche des Quadrates = Q*

$F = \frac{a}{7}$

$x = ?$

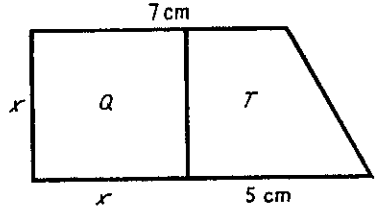


27 $\alpha = ?$

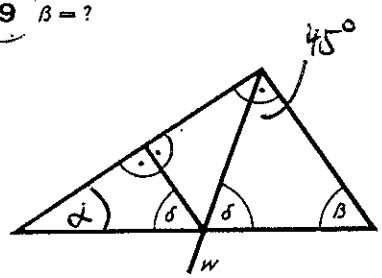


28 ** $Q = T$

$x = ?$

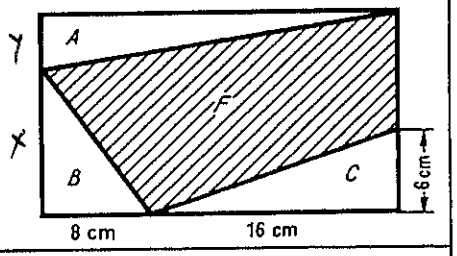


29 * $\beta = ?$

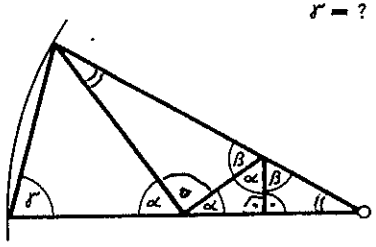


30 * $A = B = C$

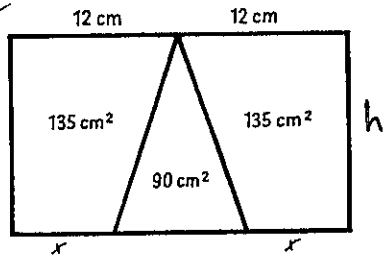
$F = ?$



31 * $\alpha = ?$ $\beta = ?$ $\gamma = ?$



32 * $x = ?$



25: $1h \mathrel{\hat{=}} 30°$, $1' \mathrel{\hat{=}} 6°$: $4 \times 30° + 2° = \underline{\underline{130°}}$

26: $Q = 196\,cm^2$, $T = 28\,cm^2 = \frac{x \cdot 7}{2} \Rightarrow \underline{\underline{x = 8cm}}$

27: $\beta = \frac{180° - 90° - 60°}{2} = 15°$, $\alpha = 90° - 15° = \underline{\underline{75°}}$

28: $Q = x^2 = T$

$Q + T = 2x^2 = \left(\frac{7 + (x+5)}{2}\right) \cdot x$ $\quad \underline{\underline{x = 4cm}}$

29: $\alpha + \beta = 90°$, $\delta = \beta$, $\beta = \frac{180° - 45°}{2} = \underline{\underline{67.5°}}$

30: $C = \frac{6 \cdot 16}{2} = 48cm^2 = A = B$

$x = \frac{2 \cdot 48}{8} = 12cm$, $y = \frac{2 \cdot 48}{24} = 4cm$

$T = 16 \cdot 24 - 3 \cdot 48 = \underline{\underline{240cm^2}}$

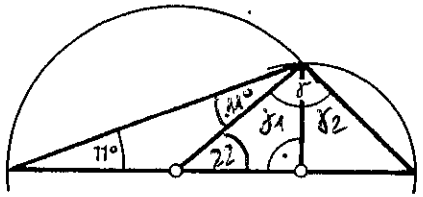
31: $\alpha = 45°$, $\beta = \frac{180° - 45°}{2} = 67.5°$

$\gamma = \frac{180° - 22.5°}{2} = \underline{\underline{78.75°}}$

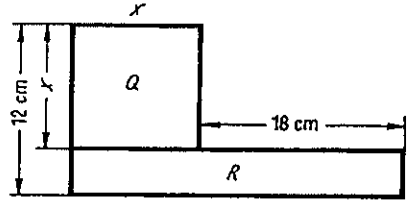
32: $h = \frac{360}{24} = 15cm$

$\left(\frac{12 + x}{2}\right) \cdot 15 = 135$ $\quad \underline{\underline{x = 6cm}}$

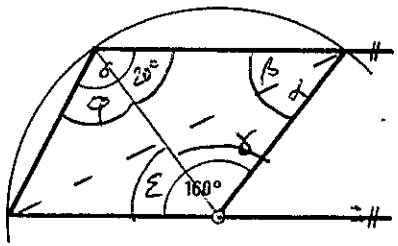
33 $\gamma = ?$



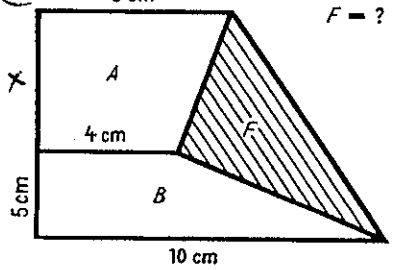
34 * $Q = R$, $x = ?$



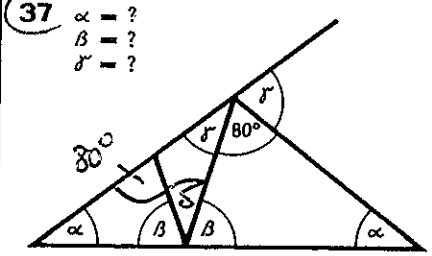
35 ** $\delta = ?$



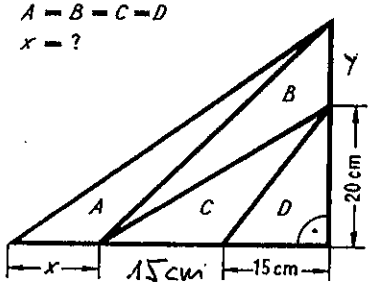
36 * $A = B$, $F = ?$



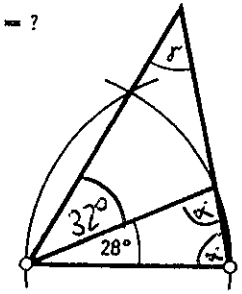
37 * $\alpha = ?$, $\beta = ?$, $\gamma = ?$



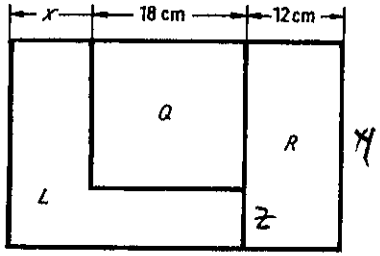
38 $A = B = C = D$, $x = ?$



39 $\gamma = ?$



40 * $L = Q = R$, $x = ?$



33: $\gamma_2 = 45°$, $\gamma_1 = 90° - 22° = 68°$

$\gamma = 45° + 68° = \underline{113°}$

34: $x^2 = (12 - x)(18 + x)$

$0 = x^2 + 3x - 108$ $\quad \underline{x = 9\,cm}$

35: $\alpha + \beta = 180° - 160° = 20°$, $\alpha = \beta = 10°$

$\gamma = 180° - 2 \cdot 20° = 140°$, $\varepsilon = 20°$

$\varphi = \frac{180° - 20°}{2} = 80° \Rightarrow \delta = \varphi + 20° = \underline{100°}$

36: $\frac{}{} = \left(\frac{4+10}{2}\right) \cdot 5 = 35\,cm^2 = \left(\frac{4+6}{2}\right) \cdot x$ $\quad x = 7\,cm$

$F = \left(\frac{6+10}{2}\right) \cdot 12 - 2 \cdot 35 = \underline{26\,cm^2}$

37: $\gamma = 50°$, $\alpha = 25°$, $\underline{\beta = 75°}$

38: $A = B = C = D = \frac{15 \cdot 20}{2} = 150\,cm^2$

$\frac{30 \cdot (20+y)}{2} = 450$ $\quad y = 10\,cm$

$\frac{(30+x)(30)}{2} = 600$ $\quad \underline{x = 10\,cm}$

39: $\alpha = \frac{180° - 28°}{2} = 76°$

$\gamma = 180° - 60° - 76° = \underline{44°}$

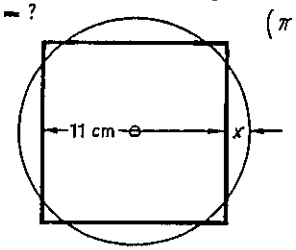
40: $L = R = Q - 18^2 = 324\,cm^2 = 12y$ $\quad y = 27\,cm$

$\Rightarrow z = 27 - 18 = 9\,cm$

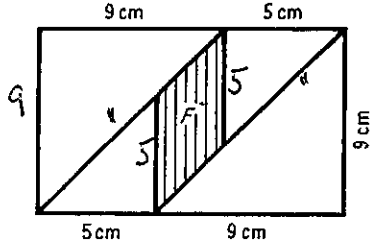
$324 = 27x + 18 \cdot 9 \Rightarrow \underline{x = 6\,cm}$

Gruppe 2

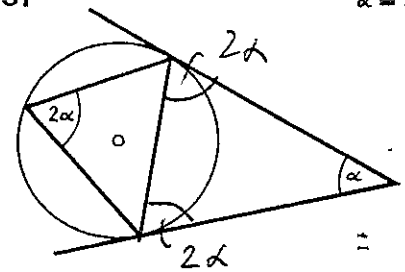
49 *Quadrat und Kreis haben gleichen Umfang* $(\pi \approx 3\frac{1}{7})$
$x = ?$



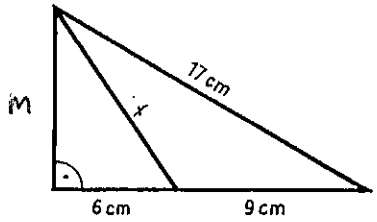
50 $F = ?$



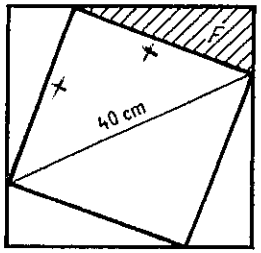
51 $\alpha = ?$



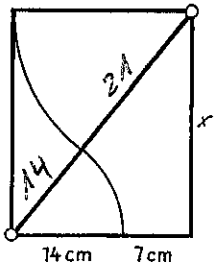
52 $x = ?$



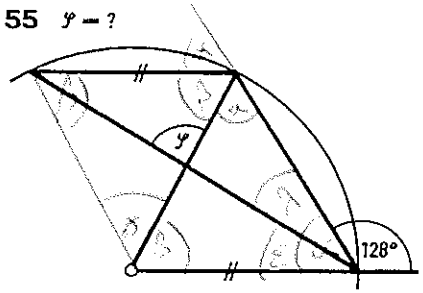
53 $F = ?$



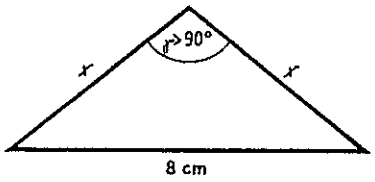
54 $x = ?$



55 $\varphi = ?$



56 *x ganzzahlig*
$x = ?$



49: $U = 44\,cm = 2\pi r \quad r = 7\,cm$

$x = \frac{14-11}{2} = \underline{\underline{1.5\,cm}}$

50: $(9+5)\cdot 9 - 9\cdot 9 - 5\cdot 5 = \underline{\underline{20\,cm^2}}$

51: $180° = 5\alpha \;,\; \underline{\underline{\alpha = 36°}}$

52: $m = \sqrt{17^2 - 15^2} = 8 \qquad x = \sqrt{8^2 + 6^2} = \underline{\underline{10\,cm}}$

53: $40 = \sqrt{x^2 + x^2} \qquad x = 28.28\,cm$

$F = \frac{1}{4}(38^2 - x^2) = \underline{\underline{161\,cm^2}}$

54: $x = \sqrt{35^2 - 21^2} = \underline{\underline{28\,cm}}$

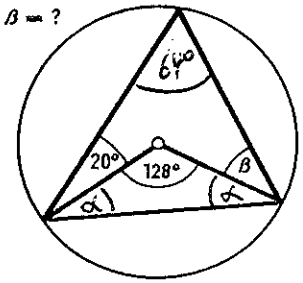
55: $\alpha = 52° \;,\; \beta = 76° \;,\; \gamma = 25° \;,\; \varepsilon = 35°$

$\lambda = 14° \;,\; \underline{\underline{\varphi = 66°}}$

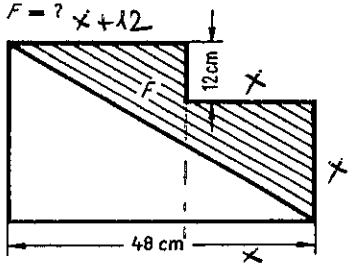
56: $x^2 + x^2 \leq 64$

$x^2 \leq 32 \quad \Rightarrow \quad \underline{\underline{x = 5}}$

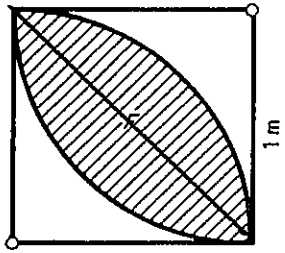
57 $\beta = ?$



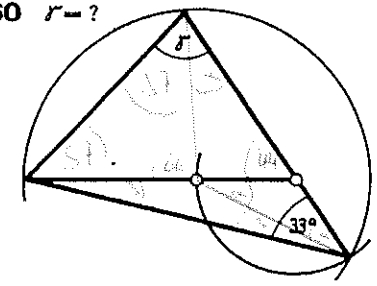
58 *2 Quadrate*
$F = ?$ $x + 12$



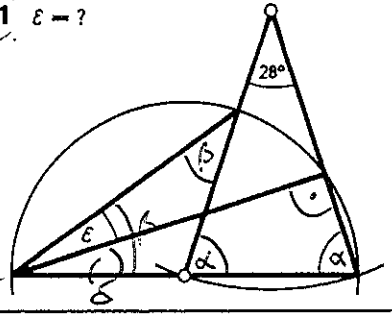
59 $F = ?$; $(\pi = 3{,}14)$



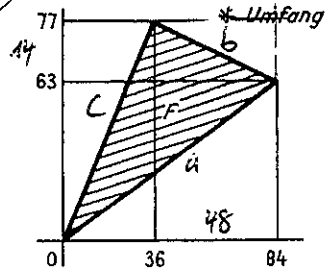
60 $r = ?$



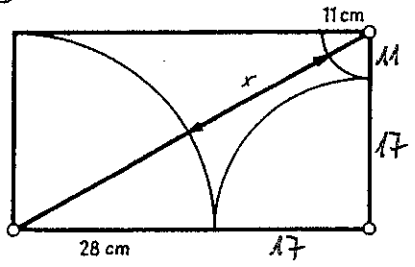
61 $\varepsilon = ?$



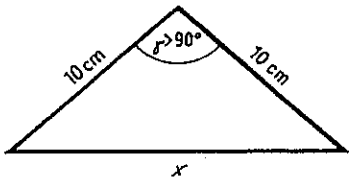
62 $F = ?$
Umfang = ?



63 $x = ?$



64 *x ganzzahlig und möglichst klein*
$x = ?$



57: $\alpha = 26°$, $\beta = 44°$

58: $48 = x + 12 + x \quad x = 18\,cm$

$\frac{48 \times 30}{2} - 18 \times 12 = 504\,cm^2$

59: $2 \cdot \left(\frac{1}{4}\pi \cdot 1^2 - \frac{1 \cdot 1}{2} \right) = 0.57\,m^2$

60: [illegible]

61: $\alpha = \frac{180 - 28}{2} = 76° = 2\beta \quad \beta = 38°$
$\delta = 90° - \alpha = 14°$
$\varepsilon = \beta - \delta = 24°$

62: $a = \sqrt{84^2 + 63^2}$
$b = \sqrt{48^2 + 14^2}$
$c = \sqrt{36^2 + 77^2}$
$U = 240\,E$

$F = 77 \cdot 84 - \frac{84 \cdot 63}{2} - \frac{77 \cdot 36}{2} - \frac{48 \cdot 14}{2} = 2100\,E^2$

63: $\sqrt{(28+17)^2 + (11+17)^2} = 53\,cm \quad x = 53 - 11 - 28 = 14\,cm$

64: $10^2 + 10^2 \leq x^2$
$200 \leq x^2$
$x = 15\,cm$