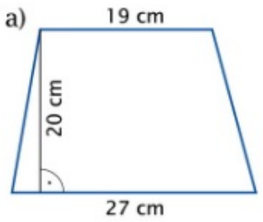
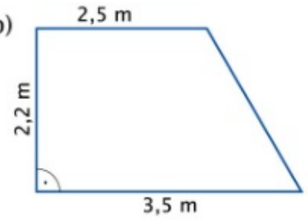
1. Oblicz pole każdego z poniższych trapezów.

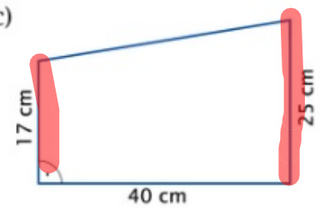
a)



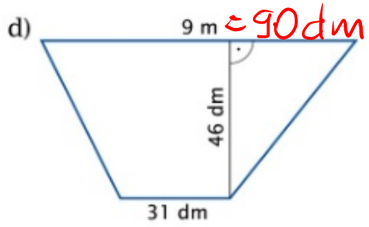
b)



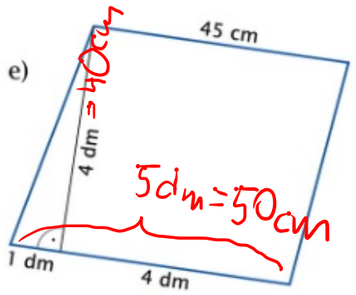
c)



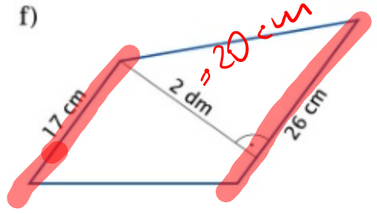
d)



e)



f)



a) $P = \frac{1}{2} \cdot 20 \cdot (19+27) = 10 \cdot 46 = 460\,cm^2$

b) $P = \frac{1}{2} \cdot 2,2 \cdot (2,5+3,5) = 1,1 \cdot 6 = 6,6\,m^2$

c) $P = \frac{1}{2} \cdot 40 \cdot (17+25) = 20 \cdot 42 = 840\,cm^2$

d) $P = \frac{1}{2} \cdot 46 \cdot (31+90) = 23 \cdot 121 = 2783\,dm^2$

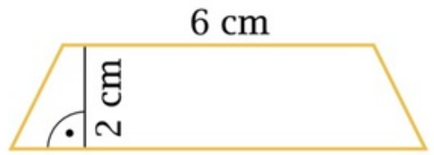
121 · 23 = 363 + 2420 = 2783

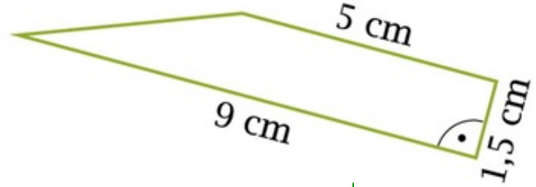
e) $P = \frac{1}{2} \cdot 40 \cdot (45+50) = 20 \cdot 95 = 1900\,cm^2$

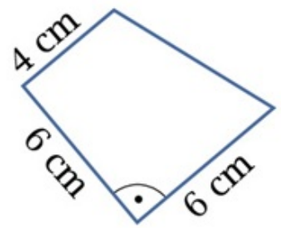
f) $P = \frac{1}{2} \cdot 20 \cdot (17+26) = 10 \cdot 43 = 430\,cm^2$

Zad. 2

Oblicz pola trapezów przedstawionych na rysunkach.







$P = \frac{1}{2} \cdot 2 \cdot (6+8) = 14\,cm^2$

$P = \frac{1}{2} \cdot 1{,}5 \cdot (5+9) = \frac{1}{2} \cdot 1{,}5 \cdot 14 = 10{,}5\,cm^2$

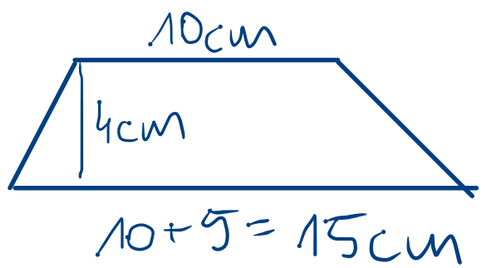
$P = \frac{1}{2} \cdot 6 \cdot (6+4) = 30\,cm^2$

Zad. 3

a) Oblicz pole trapezu, w którym wysokość ma 4 cm, jedna z podstaw ma 10 cm, a druga jest o 5 cm od niej dłuższa.

b) Suma długości podstaw trapezu wynosi 7 cm, a wysokość jest równa 4 cm. Jakie pole ma ten trapez?

a)



$P = \frac{1}{2} \cdot 4 \cdot (10 + 15) = 2 \cdot 25 = 50\,cm^2$

b)

$a + b = 7\,cm$

$h = 4\,cm$

$P = \frac{1}{2} \cdot h \cdot (a + b)$

$P = \frac{1}{2} \cdot 4 \cdot 7 = 14\,cm^2$

Zad. 4.

Uzupełnij tabelkę.

Długości podstaw trapezu	16 cm	16 m	4,3 cm	7 km	14 cm	22 cm
	14 cm	27 m	5,7 cm	3 km	6 cm	28 cm
Długość wysokości	20 cm	20 m	35 cm	0,5 km	10cm	6cm
Pole trapezu	300cm²	430m²	175cm²	2,5km²	100 cm²	150 cm²

POŁOWA → $\frac{1}{2} \cdot \square \cdot (22+28) = 150$

CAŁOŚĆ → $\square \cdot 50 = 300$

$300 : 50 = 6cm$

$P = \frac{1}{2} \cdot \overset{10}{\cancel{20}} \cdot (14+16) = 300cm^2$

$P = \frac{1}{\cancel{2}} \cdot \overset{10}{\cancel{20}} \cdot (27+16) = 430m^2$

$P = \frac{1}{2} \cdot 35 \cdot (4{,}3+5{,}7) = \frac{1}{2} \cdot 35 \cdot 10 = \frac{1}{2} \cdot 350 = 175cm^2$

$P = \frac{1}{2} \cdot 0{,}5 \cdot (7+3) = \frac{1}{\cancel{2}} \cdot 0{,}5 \cdot \overset{5}{\cancel{10}} = 2{,}5km^2$

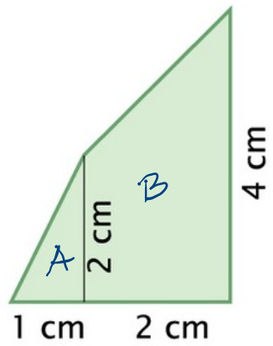
$\frac{1}{2} \cdot \square \cdot (14+6) = 100$ ← POŁOWA

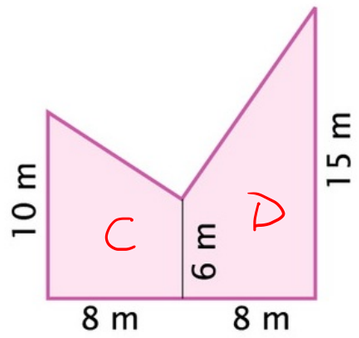
$\square \cdot 20 = 200$ ← CAŁOŚĆ

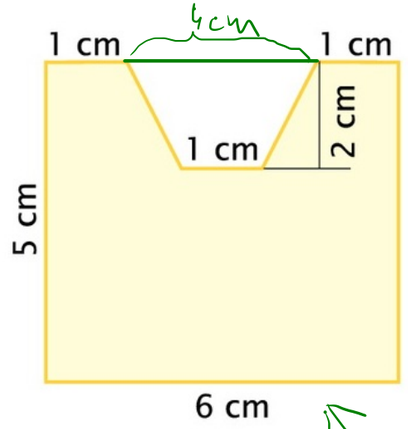
$200 : 20 = 10cm$

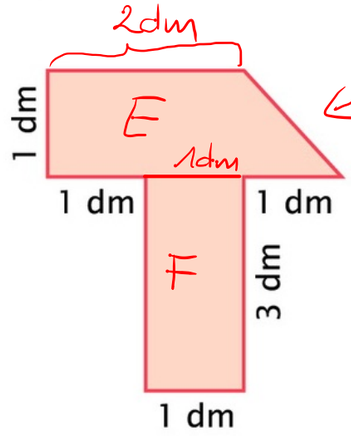
Zad. 5

Oblicz pola figur przedstawionych na rysunkach.









$P_E = \frac{1}{2} \cdot 1 \cdot (2+3) = \frac{1}{2} \cdot 5 = 2{,}5\,dm^2$

$P_F = 3 \cdot 1 = 3\,dm^2$

$P = 2{,}5 + 3 = \boxed{5{,}5\,dm^2}$

$P_A = \frac{1}{2} \cdot 1 \cdot 2 = 1\,cm^2$

$P_B = \frac{1}{2} \cdot 2 \cdot (2+4) = 6\,cm^2$

$P = 1 + 6 = \boxed{7\,cm^2}$

$P_C = \frac{1}{2} \cdot 8 \cdot (6+10) = 4 \cdot 16 = 64\,m^2$

$P_D = \frac{1}{2} \cdot 8 \cdot (6+15) = 4 \cdot 21 = 84\,m^2$

$P = 64 + 84 = \boxed{148\,m^2}$

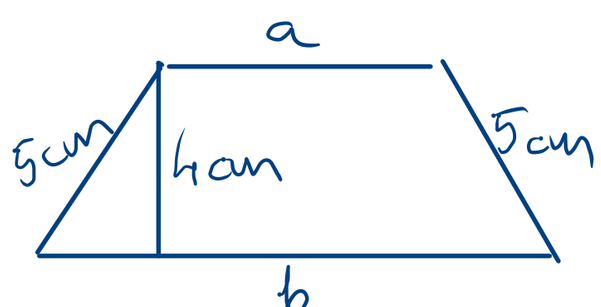
$P_{\square} = 6 \cdot 5 = 30\,cm^2$

$P_{\triangledown} = \frac{1}{2} \cdot 2 \cdot (4+1) = 5\,cm^2$

$P = 30 - 5 = \boxed{25\,cm^2}$

Zad. 6

Obwód trapezu równoramiennego wynosi 28 cm, każde ramię ma długość 5 cm, a wysokość jest równa 4 cm. Oblicz pole tego trapezu.



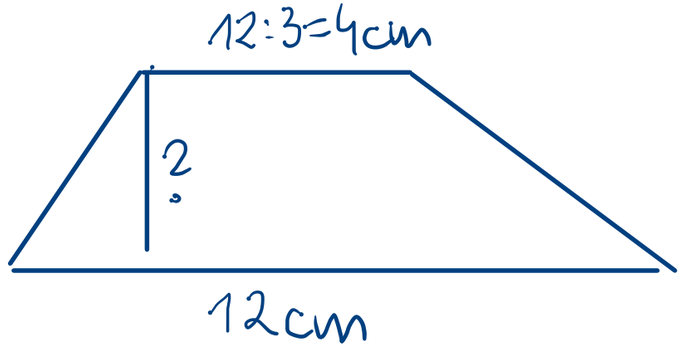
$28 - 2 \cdot 5 = 18\,cm \leftarrow a+b$

$P = \frac{1}{2} \cdot h \cdot (a+b)$

$P = \frac{1}{2} \cdot 4^2 \cdot 18 = 36\,cm^2$

Zad. 7

Pole trapezu jest równe $32\ cm^2$, jedna z jego podstaw ma długość 12 cm, a druga jest od niej 3 razy krótsza. Oblicz wysokość tego trapezu.



$P = \frac{1}{2} \cdot h \cdot (a+b)$

$\frac{1}{2} \cdot \square \cdot (12+4) = 32$ ⇐ POTOWA

$\square \cdot 16 = 32$ ⇐ CAŁOŚĆ

$32 : 16 = 2\,cm$