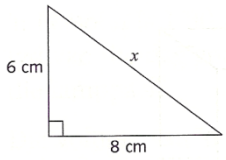
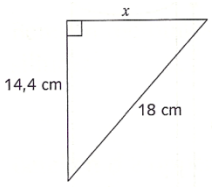
Pythagoras:

1. **Bereken x:**

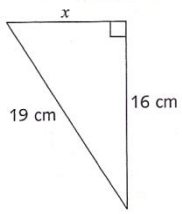
a)



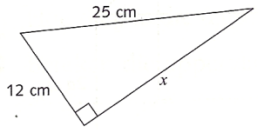
b)



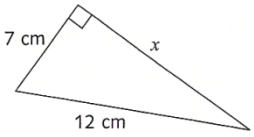
c)



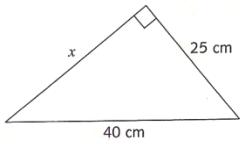
d)



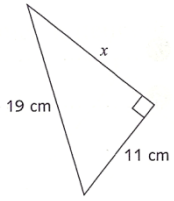
e)



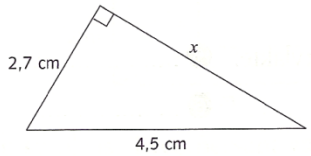
f)



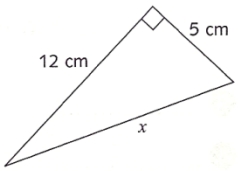
g)



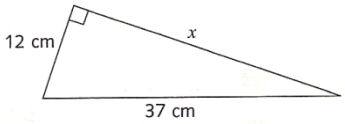
h)



i)

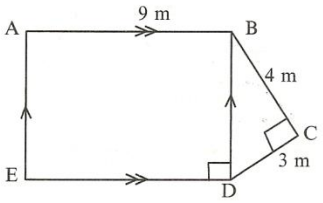


j)

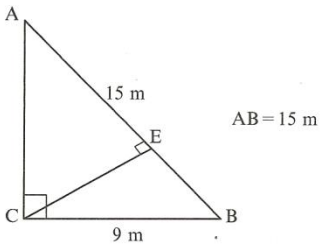


2. **Bereken die oppervlakte van die volgende figure:**

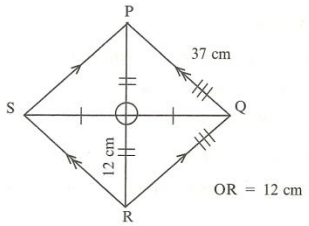
a)



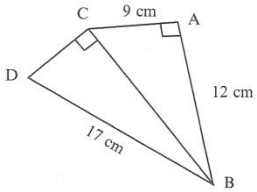
b)



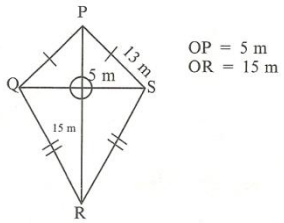
c)



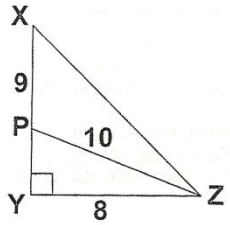
d)



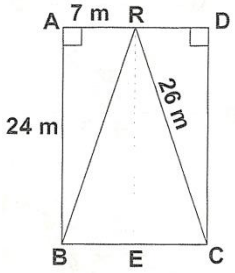
e)



3. **Bepaal die lengte van XZ:**

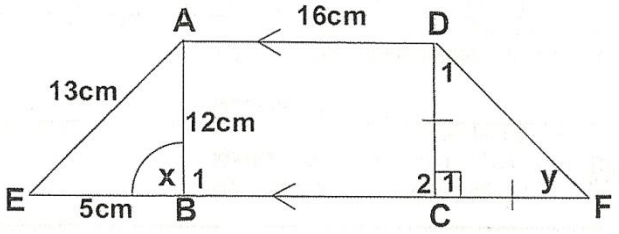


4. ***ABCD* is 'n reghoek.**



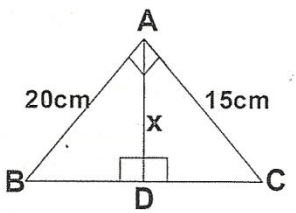
   a) **Bepaal oppervlakte van *ABCD***
   b) **Bepaal omtrek van Δ*BRC***

5. **Gebruik die volgende skets om die vrae te beantwoord:**



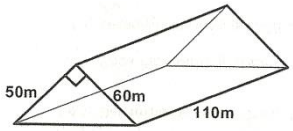
a) **Bepaal die waardes van x en y.**
b) **Bewys dat *ABCD* 'n reghoek is.**
c) **Bepaal oppervlakte van vierhoek *AEFD***

6. **Gebruik die figuur om die vrae te beantwoord:**



   a) **Bereken ΔABC se oppervlakte.**
   b) **Bepaal die lengte van *BC*.**
   c) **Bereken x.**

7. **Bepaal die volume van die volgende figuur:**



Memo:

1. a) $x^2 = 6^2 - 8^2$

$x^2 = 36 + 64$

$x^2 = 100$

$x = \sqrt{100}$

$x = 10cm$

b) $x^2 = 18^2 - 14{,}4^2$

$x^2 = 324 - 207{,}36$

$x^2 = 116{,}44$

$x = \sqrt{116{,}44}$

$x = 10{,}8cm$

c) $x^2 = 19^2 - 16^2$

$x^2 = 361 - 256$

$x^2 = 105$

$x = \sqrt{105}$

$x = 10{,}2cm$

d) $x^2 = 25^2 - 12^2$

$x^2 = 625 - 144$

$x^2 = 481$

$x = \sqrt{481}$

$x = 21{,}9cm$

e) $x^2 = 12^2 - 7^2$

$x^2 = 144 - 49$

$x^2 = 95$

$x = \sqrt{95}$

$x = 9{,}7cm$

f) $x^2 = 40^2 - 25^2$

$x^2 = 1600 - 625$

$x^2 = 975$

$x = \sqrt{975}$

$x = 31{,}2cm$

g) $x^2 = 19^2 - 11^2$

$x^2 = 361 - 121$

$x^2 = 240$

$x = \sqrt{240}$

$x = 15{,}5cm$

h) $x^2 = 4{,}5^2 - 2{,}7^2$

$x^2 = 20{,}25 - 7{,}29$

$x^2 = 12{,}96$

$x = \sqrt{12{,}96}$

$x = 3{,}6cm$

i) $x^2 = 12^2 + 5^2$

$x^2 = 144 + 25$

$x^2 = 169$

$x = \sqrt{169}$

$x = 13cm$

j) $x^2 = 37^2 - 12^2$

$x^2 = 1369 - 144$

$x^2 = 1225$

$x = \sqrt{1225}$

$x = 35cm$

2. a) $BD^2 = 4^2 + 3^2 = 25\ (Pyth.; \hat{C} = 90°)$

$\therefore BD = 8$

Reghoek + Driehoek oppervlakte

$Opp = l \times b + \frac{1}{2} b.h$

$= 9 \times 5 + \frac{1}{2}.4 \times 3$

$= 45 + 6$

$= 51m^2$

b) $AC^2 = 15^{2-}9^2\ (Pyth.;\ \hat{C} = 90°)$

$AC^2 = 144$

$AC = \sqrt{144}$

$AC = 12$

$Opp\Delta = \frac{1}{2}.b.h$

$= \frac{1}{2}.9 \times 12$

$= 54m^2$

c) *PQRS* is 'n ruit.

$Q0^2 = 37^{2-}12^2\ (Pyth.; \hat{0} = 90°; Ruit)$

$Q0^2 = 1225$

$Q0 = \sqrt{1225}$

$Q0 = 35cm$

$Opp_{ruit} = \frac{1}{2} produk\ van\ hoeklyne$

$= \frac{1}{2}, 24 \times 70$

$= 840cm^2$

d) $BC^2 = 9^2 + 12^2\ (Pyth.; \hat{A} = 90°)$

$BC^2 = 225$

$BC = \sqrt{225}$

$BC = 15cm$

$Opp_{figuur} = \frac{1}{2}b_1h_1 + \frac{1}{2}b_2h_2$

$= \frac{1}{2}.9 \times 12 + \frac{1}{2}.8 \times 15$

$= 54 + 60$

$= 114cm^2$

e) $OS^2 = 13^2 - 5^2\ (Pyth)$

$OS^2 = 169 - 25$

$OS^2 = 144$

$OS = \sqrt{144}$

$OS = 12$

$Opp_{vlieër} = \frac{1}{2}produk\ van\ hoeklyne$

$= \frac{1}{2}.24 \times 20$

$= 240m^2$

3. $PZ^2 = PY^2 + YZ^2(Pyth)$

$10^2 = PY^2 8^2$

$100 = PY^2 + 64$

$PY^2 = 100 - 64$

$PY^2 = 36$

$PY = \sqrt{36}$

$PY = 36$

$XY = XP + PY$

$XY = 9 + 6$

$XY = 15$

$XZ^2 = XY^2 + YZ^2\ (Pyth)$

$XZ^2 = 15^2 + 8^2$

$XZ^2 = 225 + 64$

$XZ^2 = 289$

$XZ = \sqrt{289}$

$XZ = 17$

4. **a)** $AB = DC\ (oorst.sye\ regh)$

$\therefore DC = 24m$

$RC^2 = RD^2 + DC^2\ (pyth)$

$26^2 = RD^2 + 24^2$

$676 = RD^2 + 576$

$\therefore RD^2 = 676 - 576$

$RD^2 = 100$

$RD = \sqrt{100}$

$RD = 10m$

$\therefore AD = AR + RD$

$AD = 7 + 10$

$AD = 17$

b) $Omtrek = 2 \times AB + 2 \times AD$

$= 2 \times 24 + 2 \times 17$

$= 82m$

5. **a)** $EA^2 = 13^2 = 169$

$EB^2 + BA^2 = 5^2 + 12^2$

$= 25 + 144$

$= 169$

$\therefore EA^2 = EB^2 + BA^2$

$\therefore \Delta ABC\ reghoekig$

$\therefore x = 90°$

$\hat{C}_1 + \hat{D}_1 + \hat{F} = 180°|$binne hoeke van Δ

$90° + \hat{D}_1 + y = 180°$

$\hat{D}_1 + y = 180° - 90°$

$= 90°|teen = sye$

$\hat{D}_1 = y$

$\therefore \hat{D}_1 = y = \frac{90°}{2} = 45°$

b) $x = 90°$

$\therefore \hat{B}_1 = 90°$

$\therefore \hat{C}_1 = \hat{B}_1$

$\therefore AB \parallel DC$

$AD \parallel BC$

EC rgt lyn

Ooreenk hoeke

Gegee

$\therefore ABCD\ reghoek, sye \parallel en\ B_1 = 90°$

c) $BC = AD|oorst\ sye\ regh$

$AB = DC|oorst\ sye\ regh$

$\therefore BC = 16cm; DC = 12cm$

$DC = CF(gegee)$

$\therefore CF = 12cm$

METODE 1

$Area\ regh.ABCD = AD \times AB$

$= 16 \times 12$

$= 192cm^2$

$$Area\ \Delta ABE = \frac{1}{2}(AD + EF) \times AB$$
$$= \frac{1}{2} \times 5 \times 12$$
$$= 30cm^2$$
$$\text{Area } \Delta DCF = \frac{1}{2} DC \times CF$$
$$= \frac{1}{2} \times 12 \times 12$$
$$= 72cm^2$$
$$Totale\ area = 192 + 30 + 72$$
$$= 294cm^2$$

METODE 2

Area trap $AEFD = \frac{1}{2}(AD + EF) \times AB$

$$= \frac{1}{2}(16 + 33) \times 12$$
$$= \frac{1}{2}(49) \times 12$$
$$= 294cm^2$$

6. a) $Area\ \Delta ABC = \frac{1}{2} AB \times AC$
$$= \frac{1}{2} \times 20 \times 15$$
$$= 150cm^2$$

b) $BC^2 = AB^2 + AC^2\ (Pyth)$

$BC^2 = 20^2 + 15^2$

$BC^2 = 400 + 225$

$BC^2 = 625$

$BC = \sqrt{625}$

$BC = 25cm$

c) $Area\ \Delta ABC = \frac{1}{2} BC \times x$

$150 = \frac{1}{2}(25).x$

$300 = 25x\ (\times 2)$

$x = 12cm\ (\div 25)$

7. $Volume = opp.v\ basis \times hoogte$
$$= \frac{1}{2}(50 \times 60) \times 110$$
$$= 1500 \times 110$$
$$= 165\ 000m^3$$