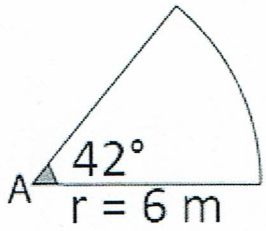
	Kaflapróf 3 kafli 6	STÆF2RH05 Haustönn 2018
Nafn: Lausnir		Einkunn:

1. (20%) Reiknaðu flatarmál og ummál hringgeirans á myndinni.



Flatarmál: 13,19 m²

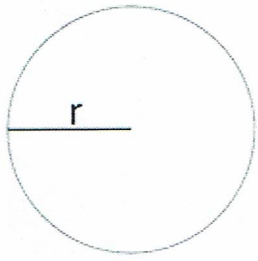
Ummál: 16,4m

$F_0 = \pi \cdot r^2 \cdot \frac{x^\circ}{360^\circ} = \pi (6m)^2 \cdot \frac{42^\circ}{360^\circ} = 13,19$ 10

Hluti Hrings $U = 2\pi \cdot r = 2 \cdot \pi \cdot 6m \left(\frac{42^\circ}{360^\circ}\right) = 4,4m$ 6

$U_{geiri} = 4,4m + 6m + 6m = 16,4m$ 4

2. (16%) Flatarmál hrings er 58,088 cm². Hvert er ummál hans?



Ummál: 27,02 cm

$F = \pi \cdot r^2$

$58,088 = \pi \cdot r^2$

$r^2 = \frac{58,088}{\pi}$

$r = \sqrt{\frac{58,088}{\pi}}$

$r = 4,3\,cm$ 8

$U = 2 \cdot r \cdot \pi$

$= 2 \cdot 4,3cm \cdot \pi$

$= 27,02\,cm$

8

3. (14%) Einn hektari eru 100 m x 100 m. $100m \cdot 100m = 10.000m^2$

a) Jörð er 230 hektarar. Hver er stærð hennar í fermetrum (m^2)?

$230 \cdot 10.000 m^2 = 2.300.000 m^2$

b) Hvað eru 230 hektarar margir ferkílómetrar (km^2)?

km^2	hm^2	dam^2	m^2
2	30		

Jörðin er $2,3 km^2$.

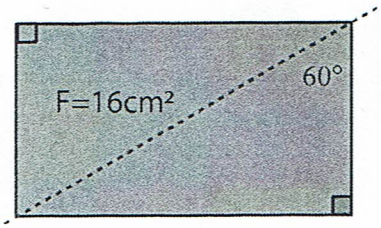
4. (10%) Flatarmál rétthyrnings er 16 cm^2. Hornalínan myndar 30° og 60° horn við hliðarlínur. Notaðu jöfnur um sérstaka þríhyrninga til að reikna hliðarlengdir hans.

$F = l \cdot b$

$l \cdot l\sqrt{3} = 16cm^2$

$l^2 = \frac{16}{\sqrt{3}} cm^2$

$l = \sqrt{9,24cm^2} = 3,04cm$



$b = l \cdot \sqrt{3} = 3,04 \cdot \sqrt{3} = 5,26$

Lengd: 3,04m

breidd: 5,26m

5. (10%) Hver er hliðarlengd fernings sem hefur sama tölu gildi fyrir ummál og flatarmál?

Í ferningi er lengd, l = breidd, b

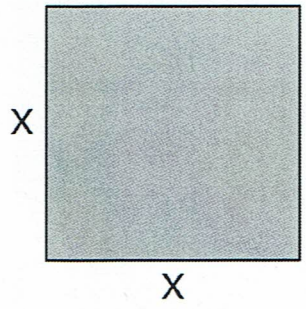
$F = l \cdot b = b \cdot b = b^2$

$U = b+b+b+b = 4b$

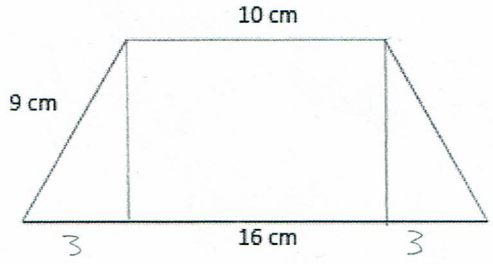
$U = F$

$4b = b^2 \quad b = 4$

$X = 4$



6. (10%) Reiknaðu flatarmál og ummál jafnarma trapisunnar á myndinni.



5% Flatarmál: $110,31 \text{ cm}^2$

5% Ummál: 44cm

$F = \frac{(a+b) \cdot h}{2} = \frac{(16+10) \cdot 8,485}{2} = 110,31$

h? $h^2 = 9^2 - 3^2 = 72$

$h = \sqrt{72}$

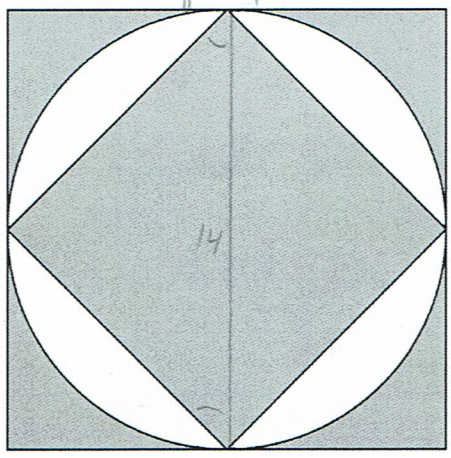
$h = 8,49$

$U = 9\text{cm} + 10\text{cm} + 9\text{cm} + 16\text{cm}$

Ferningur er með l=b
l=lengd, b=breidd

7. (20%) Á myndinni eru tveir ferningar og hringur með þvermálið 14 cm.

r = radius = $\frac{\text{þvermál}}{2} = \frac{14\,cm}{2} = 7\,cm$



$l_1 = 14cm$

$b_1 = 14cm$

a) Hvert er flatarmál skyggða svæðisins?

Flatarmál: 140,06 cm²

$F_{skyg} = F_{\square} = F_{\square} + F_{\diamond} = l_1 \cdot b_1 - \pi \cdot r^2 + l_2 \cdot b_2$

$14\,cm \cdot 14\,cm - \pi \cdot (7\,cm)^2 + \left(\frac{14\,cm}{\sqrt{2}}\right)^2 =$

$= 196\,cm^2 - 153,94\,cm^2 + 98\,cm^2$

$= 140,06\,cm^2$

b) Hvert er ummál skyggða svæðisins?

Ummál: 139,58cm

$U = 4 \cdot l_1 + 2 \cdot r \cdot \pi + 4 \cdot l_2$

$= 4 \cdot 14\,cm + 2 \cdot 7\,cm \cdot \pi + 4 \cdot \frac{14}{\sqrt{2}}\,cm$

$= 56\,cm + 43,98\,cm + 39,60\,cm$

$= 139,58\,cm$