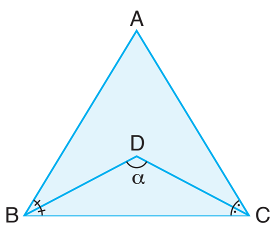
ÜÇGENLER - I

ÜÇGENDE AÇILAR

1

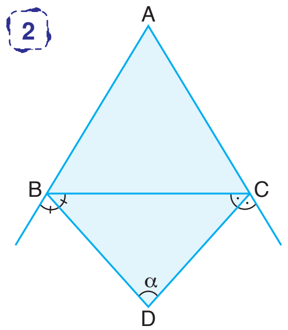


$\alpha = 90° + \frac{m(\widehat{A})}{2}$

[AD] çizilirse açıortay olur.

D : İç teğet çemberin merkezi, iç açıortayların kesişme noktasıdır.

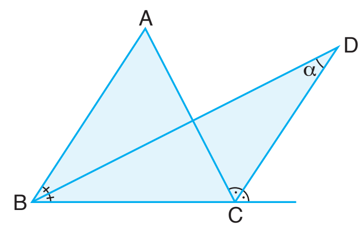
2



$\alpha = 90° - \frac{m(\widehat{A})}{2}$

[AD] çizilirse açıortay olur.

3



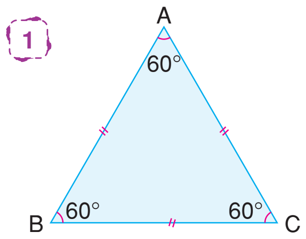
$\alpha = \frac{m(\widehat{A})}{2}$

[AD] çizilirse açıortay olur.

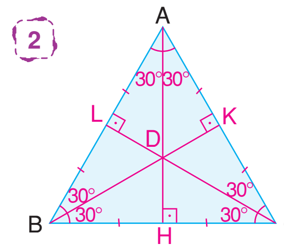
D : Dış teğet çemberlerden birinin merkezidir.

EŞKENAR ÜÇGEN

1

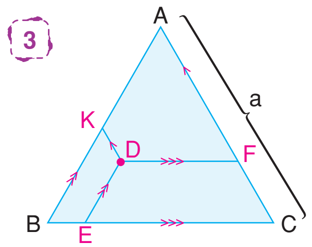


2



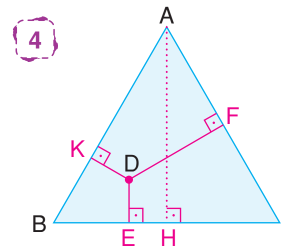
|AH| = |BK| = |CL|

3



|DE| + |DF| + |DK| = a

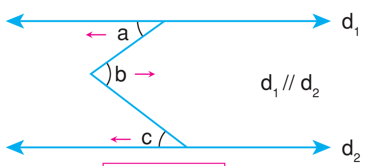
4



|DE| + |DF| + |DK| = |AH|

DOĞRUDA AÇILAR

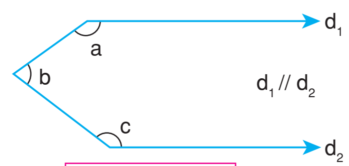
1



$d_1 // d_2$

b = a + c

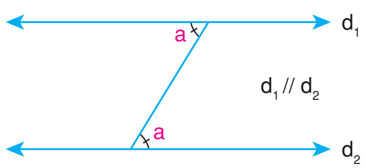
2



$d_1 // d_2$

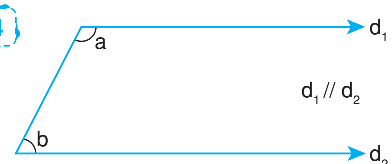
a + b + c = 360°

3



$d_1 // d_2$

4



$d_1 // d_2$

a + b = 180°

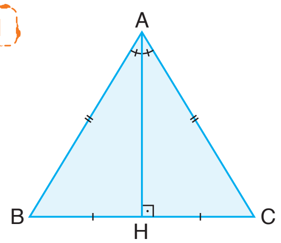
5 x + y = 90° ise x ve y tümler açıdır.

6 x + y = 180° ise x ve y bütünler açıdır.

7 $1° = 60' = 3600'' \Rightarrow \frac{D}{180°} = \frac{R}{\pi}$

İKİZKENAR ÜÇGEN

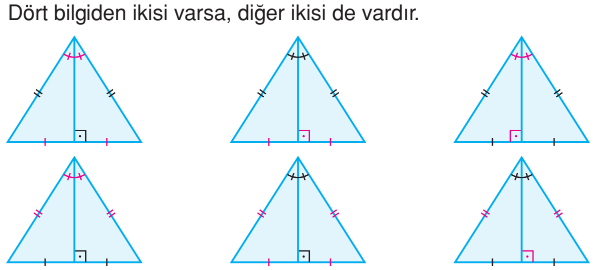
1



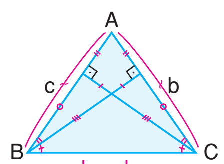
i. Yükseklik → h_a
ii. Açıortay → n_A
iii. Kenarortay → V_a
iv. İkizkenarlık → |AB| = |AC|

$|AH| = h_a = n_A = V_a$

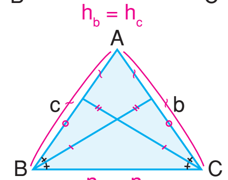
Dört bilgiden ikisi varsa, diğer ikisi de vardır.



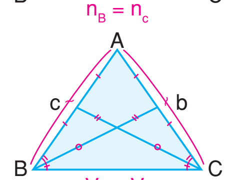
2



$h_b = h_c$

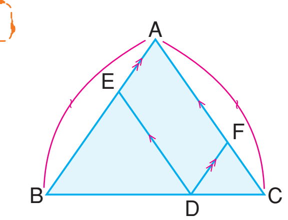


$n_B = n_C$

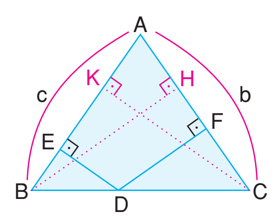


$V_b = V_c$

3



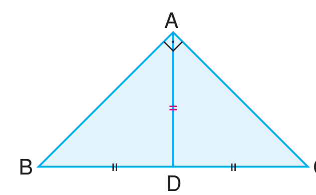
|DE| + |DF| = |AB| = |AC|



|DE| + |DF| = |BH| = |CK|

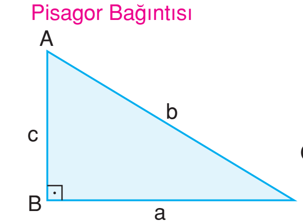
DİK ÜÇGEN VE TRİGONOMETRİ-I

1



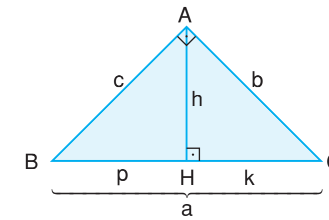
Muhteşem üçlü

Pisagor Bağıntısı



$b^2 = a^2 + c^2$

2 Öklid Bağıntıları

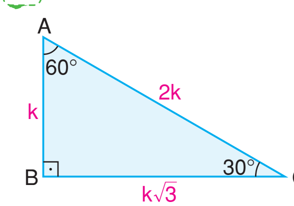


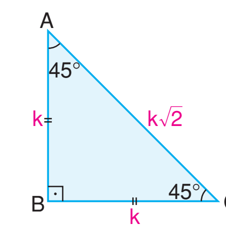
- $h^2 = p \cdot k$
- $b^2 = k \cdot a$
- $c^2 = p \cdot a$
- $a \cdot h = b \cdot c$

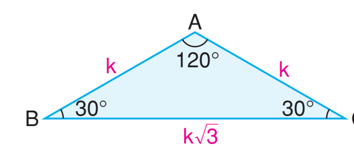
3 Kenarlarına Göre Özel Üçgenler

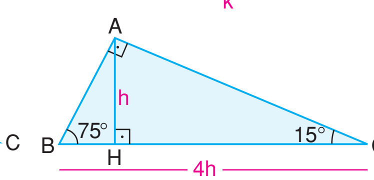
- 3 – 4 – 5 üçgeni
- 5 – 12 – 13 üçgeni
- 8 – 15 – 17 üçgeni
- 7 – 24 – 25 üçgeni
- $k - 2k - k\sqrt{5}$ üçgeni

4

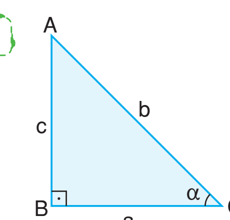






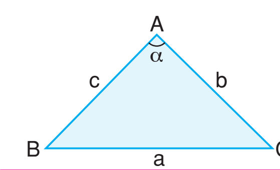


5



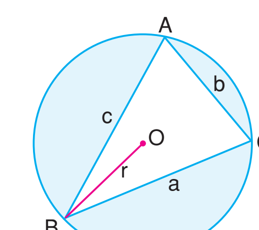
- $\sin\alpha = \frac{c}{b}$
- $\cos\alpha = \frac{a}{b}$
- $\tan\alpha = \frac{c}{a}$
- $\cot\alpha = \frac{a}{c}$

6 Kosinüs Teoremi



$a^2 = b^2 + c^2 - 2 \cdot b \cdot c \cdot \cos\alpha$

7 Sinüs Teoremi

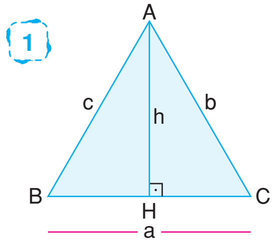


$\frac{a}{\sin\widehat{A}} = \frac{b}{\sin\widehat{B}} = \frac{c}{\sin\widehat{C}} = 2r$

ÜÇGENLER-2

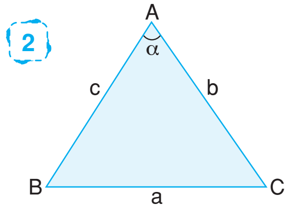
ÜÇGENDE ALAN

1



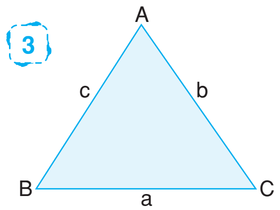
$A(\widehat{ABC}) = \frac{a \cdot h}{2}$

2

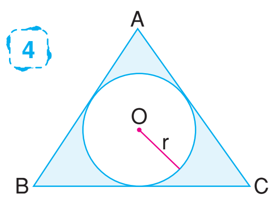


$A(\widehat{ABC}) = \frac{1}{2} \cdot b \cdot c \cdot \sin\alpha$

3



4

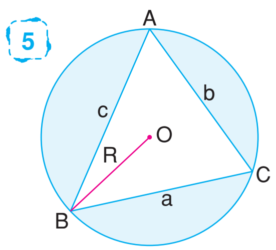


(u : üçgenin çevresinin yarısı)

$A(\widehat{ABC}) = \sqrt{u \cdot (u-a)(u-b)(u-c)}$

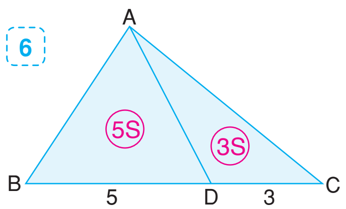
$A(\widehat{ABC}) = u \cdot r$

5



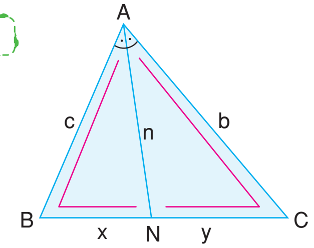
$A(\widehat{ABC}) = \frac{a \cdot b \cdot c}{4R}$

6



AÇIORTAY

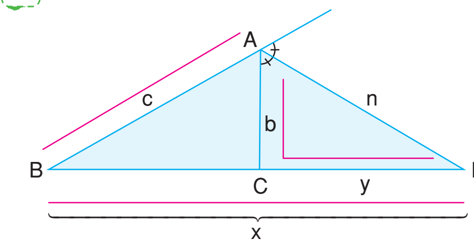
1



$\frac{c}{x} = \frac{b}{y}$

$n^2 = b \cdot c - x \cdot y$

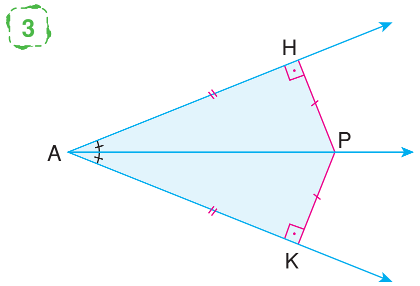
2



$\frac{c}{x} = \frac{b}{y}$

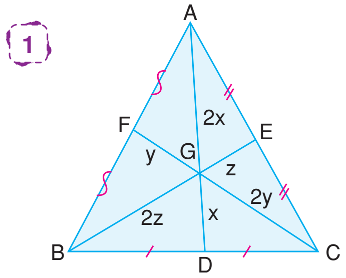
$n^2 = x \cdot y - b \cdot c$

3



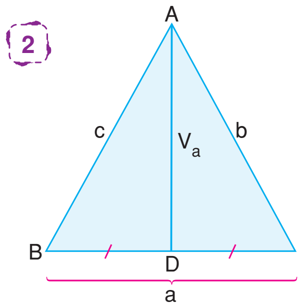
KENARORTAY

1



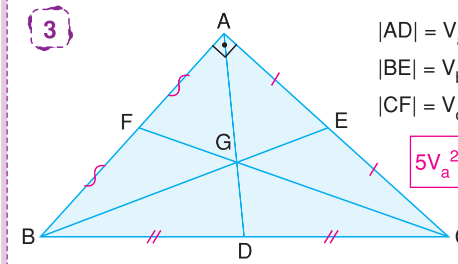
G: Ağırlık merkezi, kenarortayların kesişme noktasıdır.

2



$2V_a^2 = b^2 + c^2 - \frac{a^2}{2}$

3



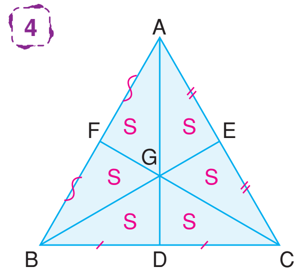
$|AD| = V_a$

$|BE| = V_b$

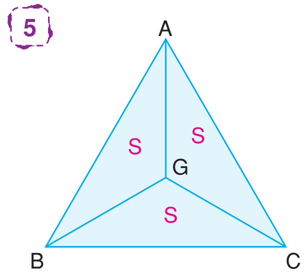
$|CF| = V_c$

$5V_a^2 = V_b^2 + V_c^2$

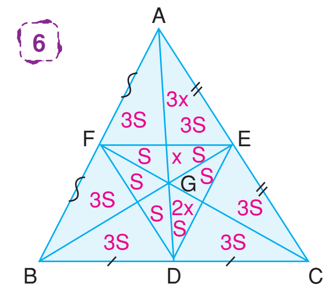
4



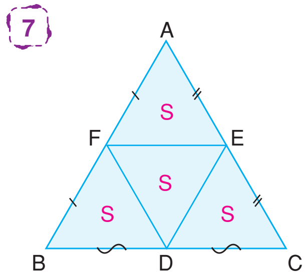
5



6

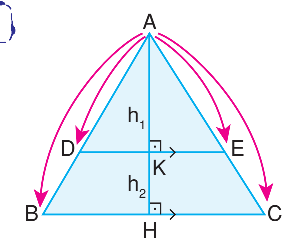


7



ÜÇGENDE BENZERLİK

1

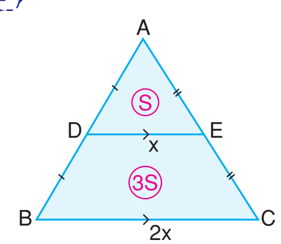


$\widehat{ADE} \sim \widehat{ABC}$

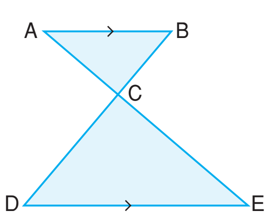
$k = \frac{|AD|}{|AB|} = \frac{|AE|}{|AC|} = \frac{|DE|}{|BC|} = \frac{h_1}{h_1 + h_2}$

$k^2 = \frac{A(\widehat{ADE})}{A(\widehat{ABC})}$

2 Temel Benzerlik

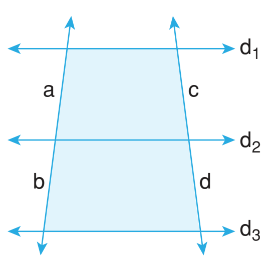


3 Kelebek Benzerliği



$\widehat{ABC} \sim \widehat{EDC}$

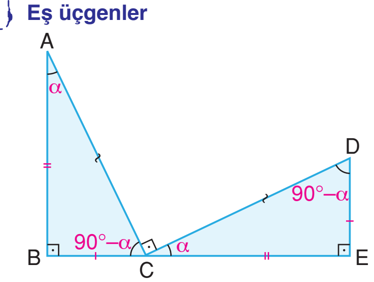
4 Thales Teoremi



$d_1 // d_2 // d_3$

$\frac{a}{b} = \frac{c}{d}$

5 Eş üçgenler

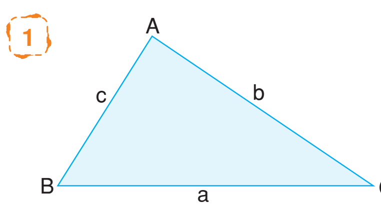


k = 1 ise üçgenler eştir.

$\widehat{ABC} \cong \widehat{CED}$

ÜÇGENDE AÇI-KENAR BAĞINTILARI

1

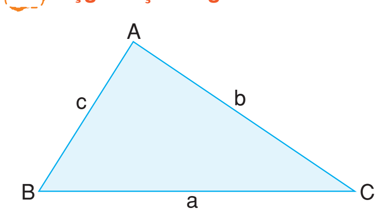


$m(\widehat{A}) > m(\widehat{B}) > m(\widehat{C})$ ise

$a > b > c$ $h_a < h_b < h_c$

$n_A < n_B < n_C$ $V_a < V_b < V_c$

2 Üçgen Eşitsizliği

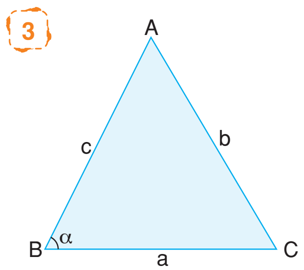


$|b - c| < a < b + c$

$|a - c| < b < a + c$

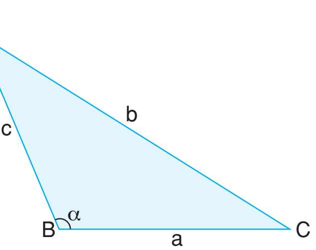
$|a - b| < c < a + b$

3



$\alpha < 90°$

$b^2 < a^2 + c^2$



$\alpha > 90°$

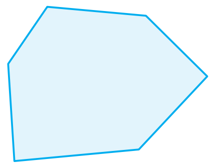
$b^2 > a^2 + c^2$

ÇOKGENLER VE DÖRTGENLER - I

ÇOKGENLER

KONVEKS ÇOKGEN

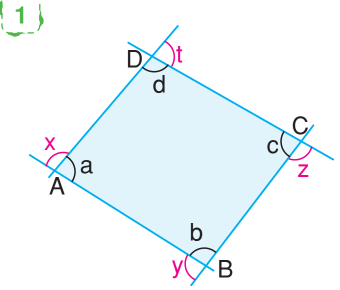
n kenarlı bir çokgenin,



- Bir köşesinden $n-3$ tane köşegen çizilir.
- Bir köşesinden çizilen köşegenler $n-2$ tane üçgen oluşturur.
- Köşegen sayısı $\frac{n(n-3)}{2}$ dir.
- İç açı toplamı $(n-2)\cdot 180°$ dir.
- Dış açı toplamı $360°$ dir.

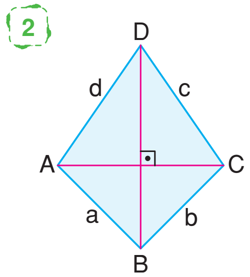
DÖRTGENLER

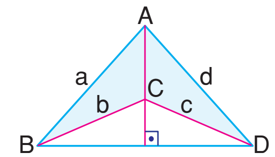
1



$a + b + c + d = 360°$
$x + y + z + t = 360°$

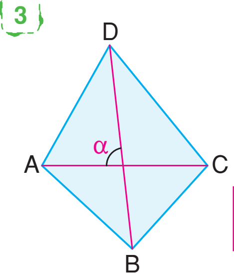
2

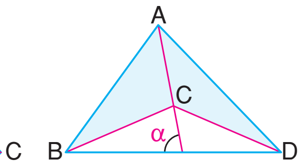




$a^2 + c^2 = b^2 + d^2$

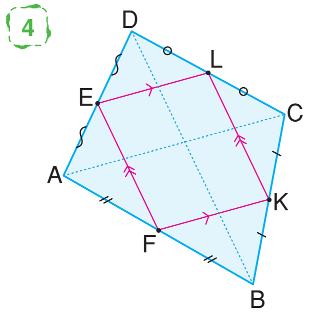
3





$A(ABCD) = \frac{1}{2}\,|AC|\cdot|BD|\cdot \sin\alpha$

4



EFKL paralelkenar

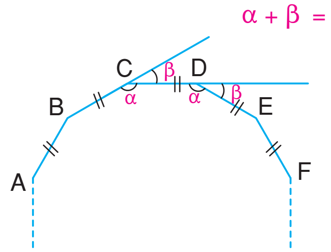
- $Ç(EFKL) = |AC| + |BD|$
- $A(EFKL) = \frac{A(ABCD)}{2}$

DÜZGÜN ÇOKGEN

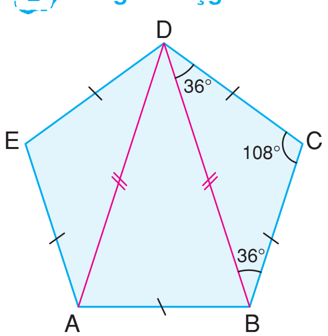
1 n kenarlı bir düzgün çokgenin,

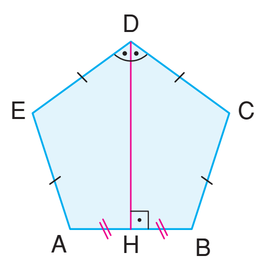
- Bir dış açısının ölçüsü $\beta = \frac{360°}{n}$
- Bir iç açısının ölçüsü $\alpha = \frac{(n-2)\cdot 180°}{n}$

$\alpha + \beta = 180°$



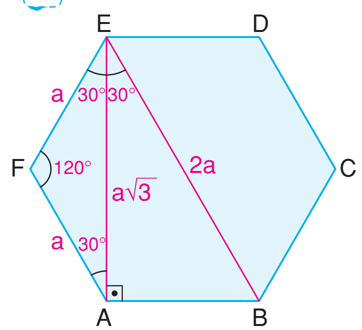
2 Düzgün Beşgen

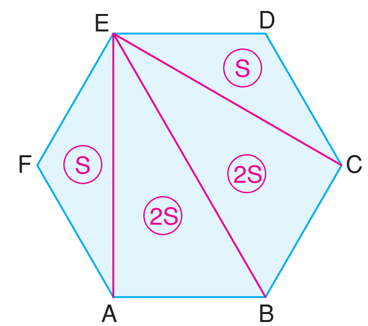


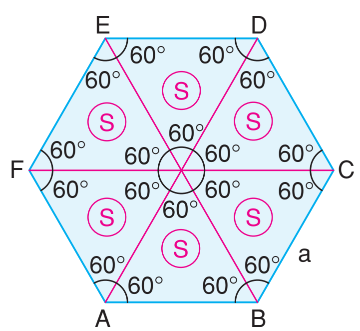


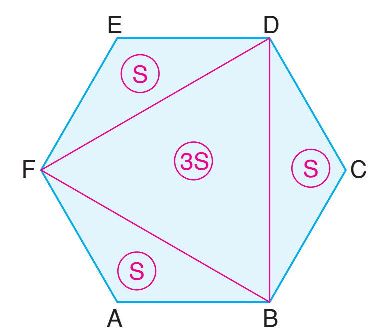
[DH] simetri eksenidir.

3 Düzgün Altıgen



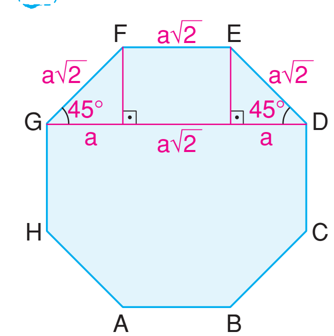


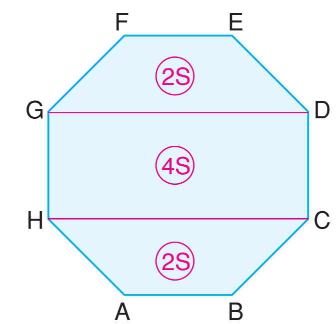


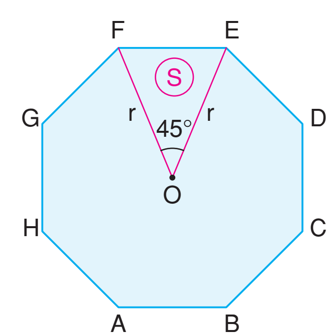


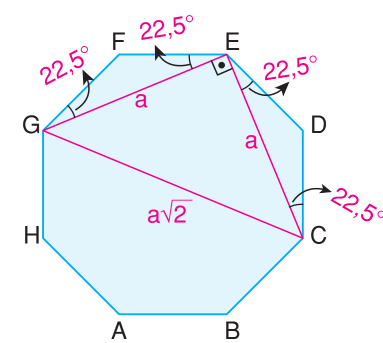
$S = \frac{a^2\sqrt{3}}{4}$
$A(ABCDEF) = 6S$

4 Düzgün Sekizgen



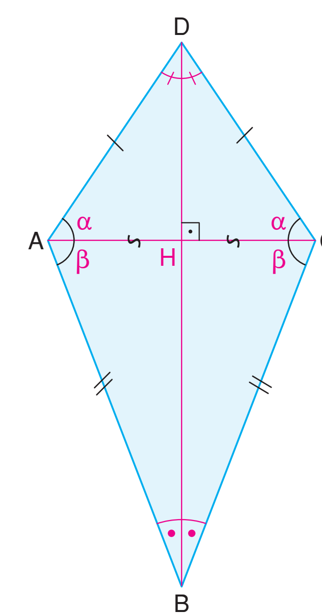






$S = \frac{1}{2}\cdot r\cdot r\cdot \frac{\sqrt{2}}{2}$
$A(ABCDEFGH) = 8S$

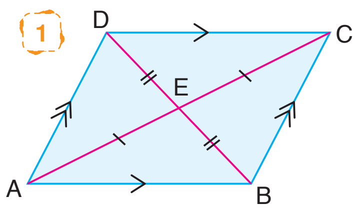
DELTOİD

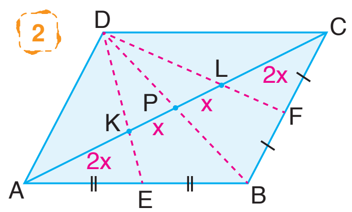


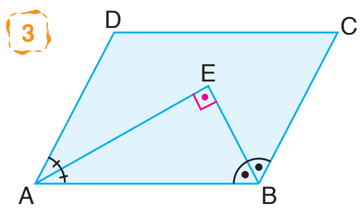
- Köşegenler dik kesişir.
- [BD] açıortay ve simetri eksenidir.
- $m(\widehat{BAD}) = m(\widehat{BCD})$
- $|AH| = |HC|$
- $A(ABCD) = \frac{|AC|\cdot|BD|}{2}$

ÇOKGENLER VE DÖRTGENLER 2

PARALELKENAR

1

Köşegenler birbirini ortalar

2


3


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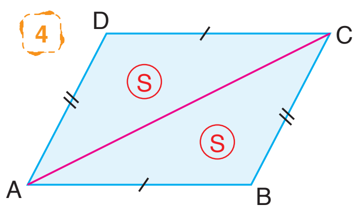
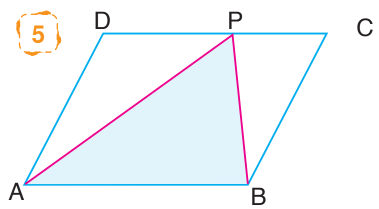
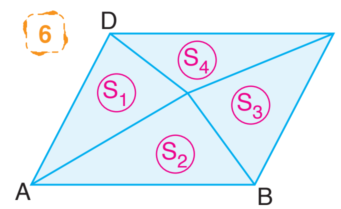
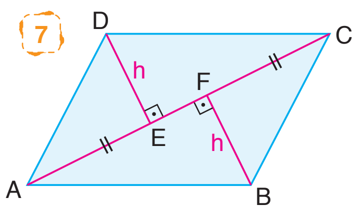
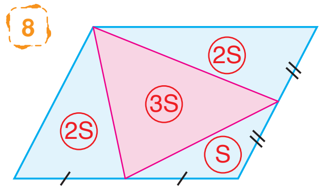
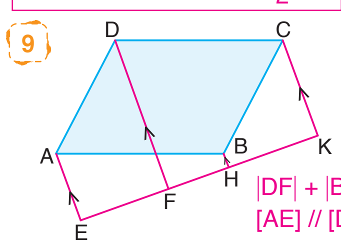


5

$A(\widehat{APB}) = \frac{A(ABCD)}{2}$

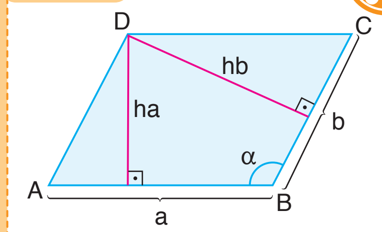
6

$S_1 + S_3 = S_2 + S_4 = \frac{A(ABCD)}{2}$

7


8


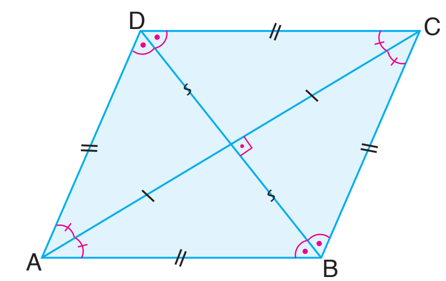
9

$|DF| + |BH| + = |AE| + |CK|$
[AE] // [DF] // [BH] // [CK]

ALAN


$A(ABCD) = a \cdot ha = b \cdot hb$
$A(ABCD) = a \cdot b \cdot \sin\alpha$

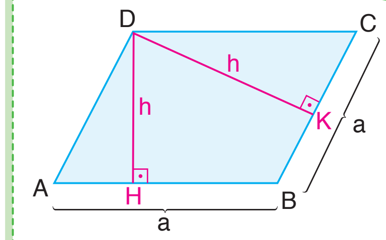
EŞKENAR DÖRTGEN

Dört kenarı birbirine eşit paralellerkenardır.



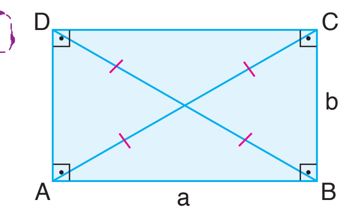
- Köşegenler dik kesişir.
- Köşegenler açıortaydır.

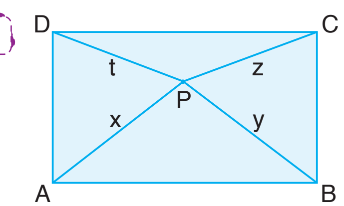
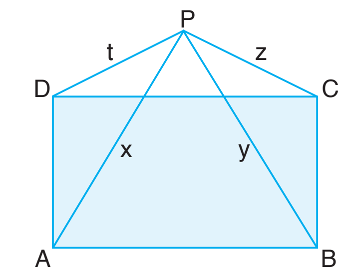
ALAN


$A(ABCD) = a \cdot h$

DİKDÖRTGEN

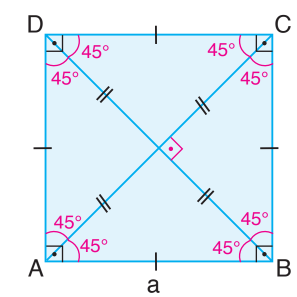
Bütün açıları 90° olan paralelkenardır.

1

Köşegenler eşittir.
$A(ABCD) = a . b$

2


$x^2 + z^2 = y^2 + t^2$

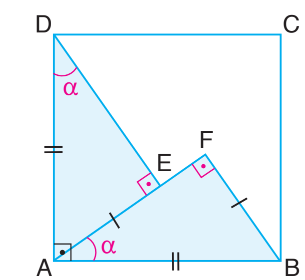
KARE

Bütün kenarları eşit olan dikdörtgendir.

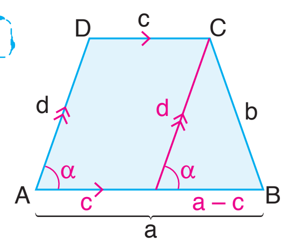


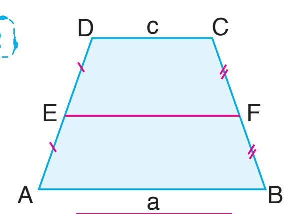
- Köşegenler dik kesişir.
- Köşegenler açıortaydır.

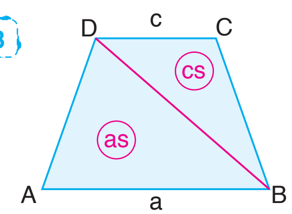
$A(ABCD) = a^2$

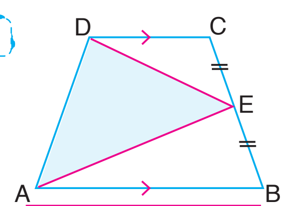


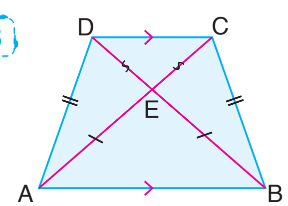
YAMUK

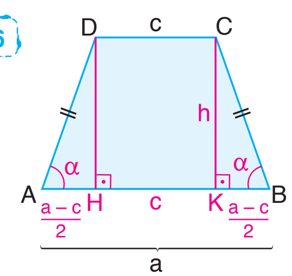
1


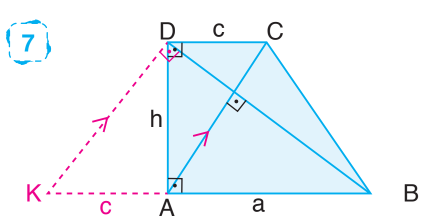
2

$|EF| = \frac{a + c}{2}$

3


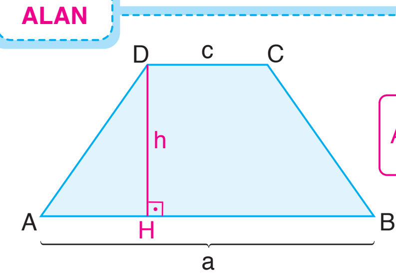
4

$A(\widehat{ADE}) = \frac{A(ABCD)}{2}$

5

İkizkenar yamukta köşegenler eşittir.

6


7

$h^2 = a \cdot c$

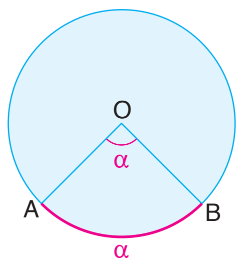
ALAN


$A(ABCD) = \left(\frac{a + c}{2}\right) \cdot h$

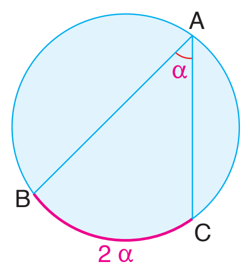
ÇEMBER VE DAİRE

ÇEMBERDE AÇI

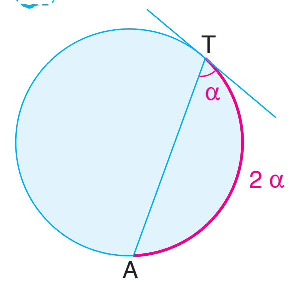
1 Merkez Açı



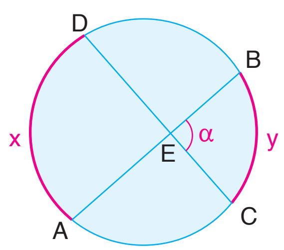
2 Çevre Açı



3 Teğet - Kiriş Açı

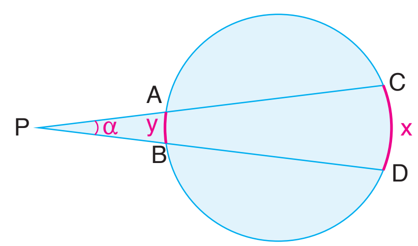


4 İç Açı



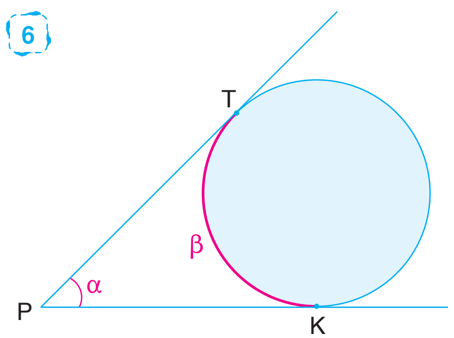
$\alpha = \dfrac{x + y}{2}$

5 Dış Açı



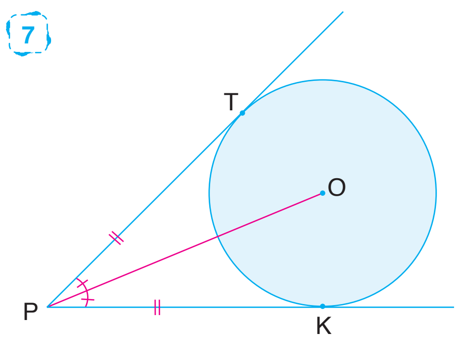
$\alpha = \dfrac{x - y}{2}$

6

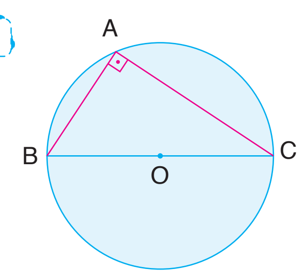


$\alpha + \beta = 180°$

7

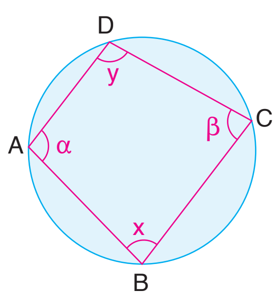


8



Çapı gören çevre açı 90° dir.

9 ABCD Kirişler Dörtgeni

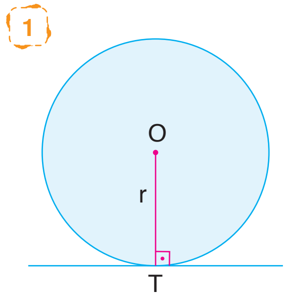


$x + y = 180°$

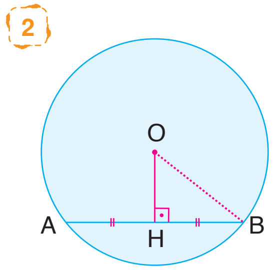
$\alpha + \beta = 180°$

ÇEMBERDE UZUNLUK

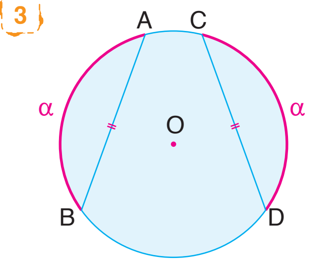
1



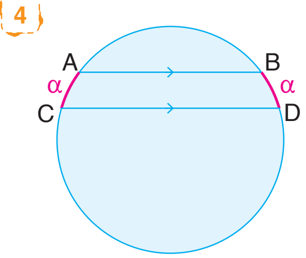
2



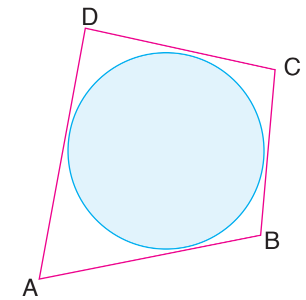
3



4

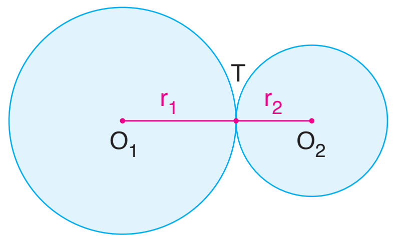


5 ABCD Teğetler Dörtgeni



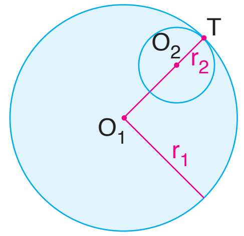
$|AB| + |CD| = |AD| + |BC|$

6 Dıştan Teğet Çemberler



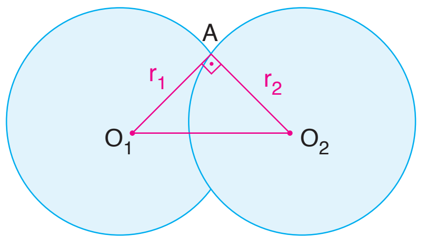
$|O_1O_2| = r_1 + r_2$

7 İçten Teğet Çemberler



$|O_1O_2| = r_1 - r_2$

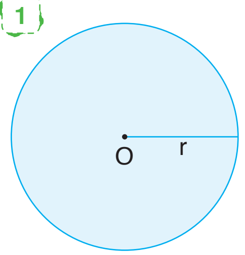
8 Çemberler Dik Kesişirse



$|O_1O_2|^2 = r_1^2 + r_2^2$

DAİREDE UZUNLUK VE ALAN

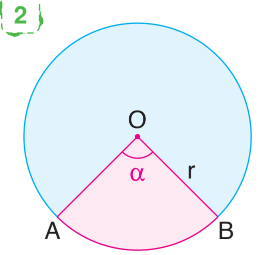
1



Çevre = $2\pi r$

Alan = πr^2

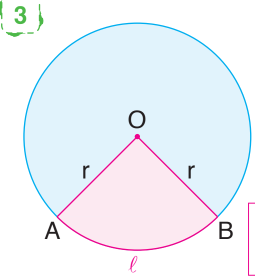
2



$|\overset{\frown}{AB}| = 2\pi r \cdot \dfrac{\alpha}{360°}$

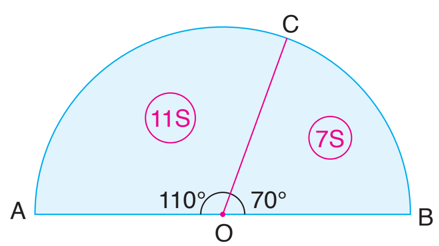
Dilim Alanı $= \pi r^2 \cdot \dfrac{\alpha}{360°}$

3

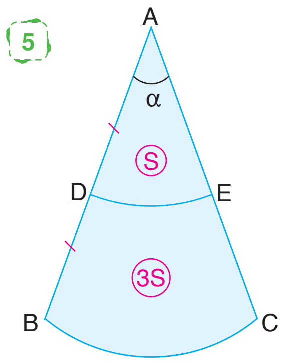


Dilim Alanı $= \dfrac{\ell \cdot r}{2}$

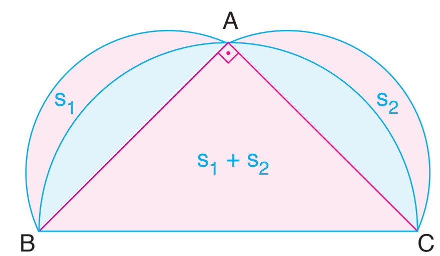
4



5



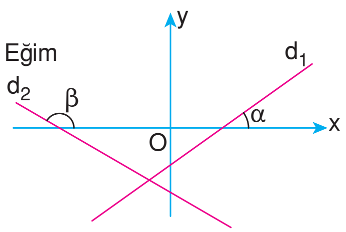
6



ANALİTİK GEOMETRİ-1

DOĞRU ANALİTİĞİ-1

1 Eğim



$m_1 = \tan\alpha > 0$
$m_2 = \tan\beta < 0$

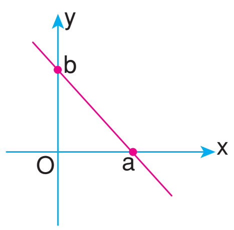
2 İki noktası bilinen doğrunun eğimi;
$A(x_1, y_1)$ ve $B(x_2, y_2)$ noktaları için $m = \dfrac{y_2 - y_1}{x_2 - x_1}$

3 **Eğim ve bir noktası bilinen doğru denklemi (Kartezyen veya Kapalı Denklem)**

Eğim m ve nokta $A(x_1, y_1)$ için

d: $m = \dfrac{y - y_1}{x - x_1}$ şeklinde yazılır.

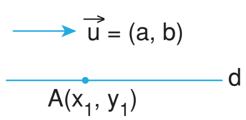
4



$\dfrac{x}{a} + \dfrac{y}{b} = 1$

5 x ekseni y = 0 doğrusudur.
y ekseni x = 0 doğrusudur.

6 **Parametrik ve vektörel denklem**



$\vec{u}$ doğrultman vektör

$\vec{u}$ // d

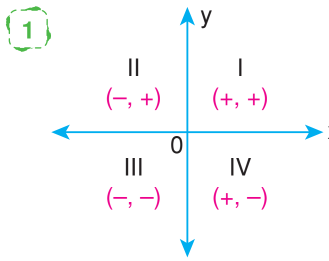
$x = x_1 + k \cdot a$
$y = y_1 + k \cdot b$
Parametrik denklem

$(x, y) = (x_1, y_1) + k \cdot (a, b)$ Vektörel denklem

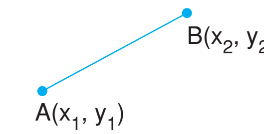
7
- Paralel doğruların eğimleri eşittir.
  $d_1 \parallel d_2 \Leftrightarrow m_1 = m_2$
- Dik doğruların eğimleri çarpımı –1'dir.
  $d_1 \perp d_2 \Leftrightarrow m_1 \cdot m_2 = -1$

NOKTA ANALİTİĞİ

1

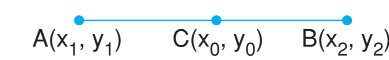


2 **İki nokta arasındaki uzaklık**



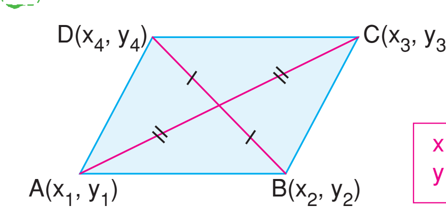
$|AB| = \sqrt{(x_2 - x_1)^2 + (y_2 - y_1)^2}$

3 **Orta Nokta**



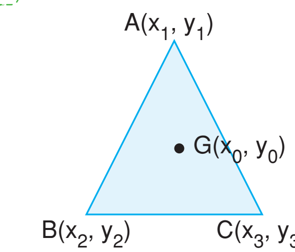
$x_0 = \dfrac{x_1 + x_2}{2}$ $\quad y_0 = \dfrac{y_1 + y_2}{2}$

4 **Paralelkenarın Köşe Koordinatları**



$x_1 + x_3 = x_2 + x_4$
$y_1 + y_3 = y_2 + y_4$

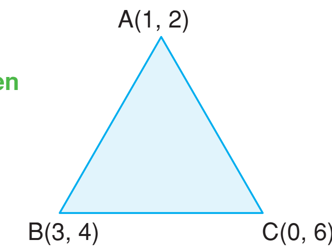
5 **Üçgenin Ağırlık Merkezinin Koordinatları**



$x_0 = \dfrac{x_1 + x_2 + x_3}{3}$

$y_0 = \dfrac{y_1 + y_2 + y_3}{3}$

6 **Üç köşesi bilinen üçgen alanı**



$A(\widehat{ABC}) = \dfrac{1}{2} \begin{vmatrix} 1 & 2 \\ 3 & 4 \\ 0 & 6 \\ 1 & 2 \end{vmatrix}$

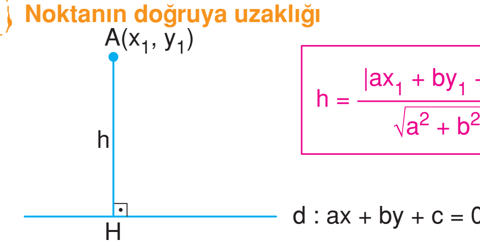
L = 6 + 0 + 6, K = 4 + 18 + 0

$A(\widehat{ABC}) = \dfrac{1}{2} |K - L|$

$A(\widehat{ABC}) = \dfrac{1}{2} |22 - 12| = 5 \text{ br}^2$

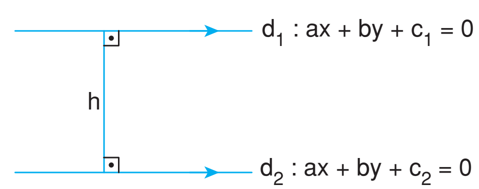
DOĞRU ANALİTİĞİ - 2

1 **Noktanın doğruya uzaklığı**



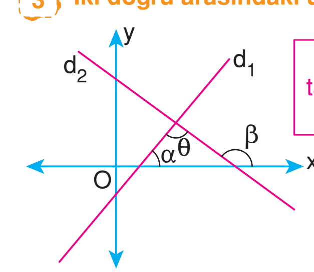
$h = \dfrac{|ax_1 + by_1 + c|}{\sqrt{a^2 + b^2}}$

2 **İki doğru arasındaki uzaklık**



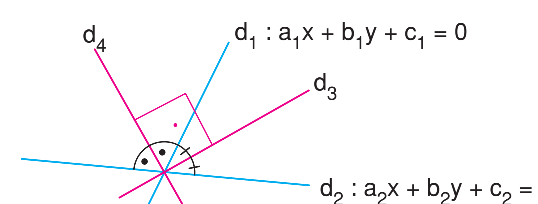
$d_1 \parallel d_2$ $\quad h = \dfrac{|c_2 - c_1|}{\sqrt{a^2 + b^2}}$

3 **İki doğru arasındaki uzaklık**



$\tan\theta = \dfrac{m_2 - m_1}{1 + m_1 \cdot m_2}$

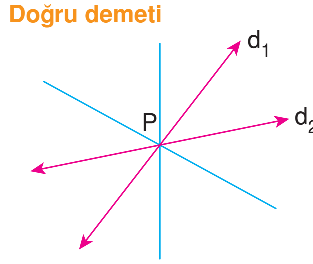
4 **Açıortay doğru denklemi**



$\dfrac{a_1x + b_1y + c_1}{\sqrt{a_1^2 + b_1^2}} = \mp \dfrac{a_2x + b_2y + c_2}{\sqrt{a_2^2 + b_2^2}}$

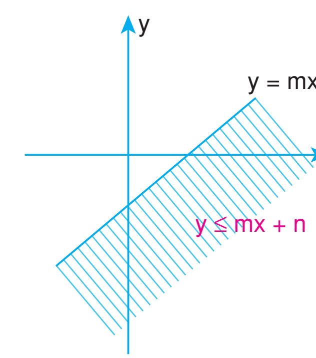
⇒ denklemden d_3 ve d_4 açıortay doğru denklemlerine ulaşılır. $d_3 \perp d_4$

5 **Doğru demeti**



$kd_1 + d_2 = 0$

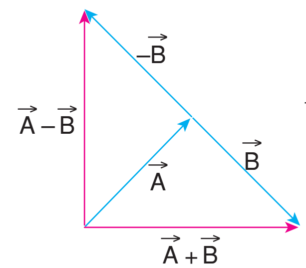
6 **Eşitsizlik Grafiği**



ANALİTİK GEOMETRİ - 2

VEKTÖRLER

1



$\vec{A} = (x_1, y_1)$

$\vec{B} = (x_2, y_2)$

$\vec{A} + \vec{B} = (x_1 + x_2, y_1 + y_2)$

$|\vec{A}| = \sqrt{x_1^2 + y_1^2}$

2

$\vec{A} = (x_1, y_1)$, $\vec{B} = (x_2, y_2)$

$\vec{AB} = \vec{B} - \vec{A} = (x_2 - x_1, y_2 - y_1)$

Eşit vektörler

$\vec{A} = \vec{B} \Leftrightarrow x_1 = x_2, y_1 = y_2$

Vektörün bir reel sayı ile çarpımı

$\hat{A} = (x_1, y_1)$ $\quad k \in \mathbb{R}$ $\quad k\vec{A} = (kx_1, ky_1)$

Vektörlerin paralelliği

$\vec{A} = (x_1, y_1)$

$\vec{B} = (x_2, y_2)$ $\quad \dfrac{x_1}{x_2} = \dfrac{y_1}{y_2}$

Vektörlerin dikliği;

$x_1 \cdot x_2 + y_1 \cdot y_2 = 0$

3

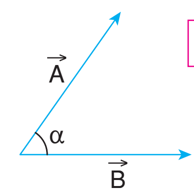
$\vec{A}$ vektörü ile aynı yönlü birim vektör,

4 Skaler Çarpım (Öklid İç Çarpımı)

$\vec{A} = (x_1, y_1)$, $\vec{B} = (x_2, y_2)$

$\vec{A} \cdot \vec{B} = x_1 \cdot x_2 + y_1 \cdot y_2$

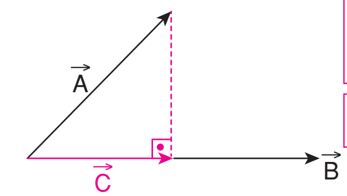
5 İç Çarpımın Geometrik Yorumu



$\vec{A} \cdot \vec{B} = |\vec{A}| \cdot |\vec{B}| \cdot \cos\alpha$

$\cos\alpha = \dfrac{\vec{A} \cdot \vec{B}}{|\vec{A}| \cdot |\vec{B}|}$

6 Dik İzdüşüm Uzunluğu ve Vektörü

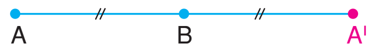


$|\vec{C}| = \dfrac{\vec{A} \cdot \vec{B}}{|\vec{B}|}$

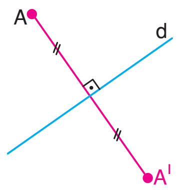
$\vec{C} = |\vec{C}| \cdot \vec{I_B}$

SİMETRİ (YANSIMA)

1 Noktanın noktaya göre simetriği



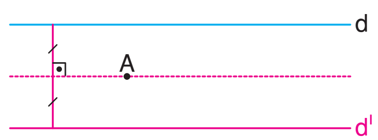
2 Noktanın doğruya göre simetriği



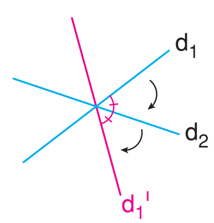
$A(x_1, y_1)$

- Ox eksenine göre → $A'(x_1, -y_1)$
- Oy eksenine göre → $A'(-x_1, y_1)$
- Orijin → $A'(-x_1, -y_1)$
- $y = x$ → $A'(y_1, x_1)$
- $y = -x$ → $A'(-y_1, -x_1)$
- $x = a$ → $A'(2a - x_1, y_1)$
- $y = b$ → $A'(x_1, 2b - y_1)$

3 Doğrunun noktaya göre simetriği



4 Doğrunun doğruya göre simetriği

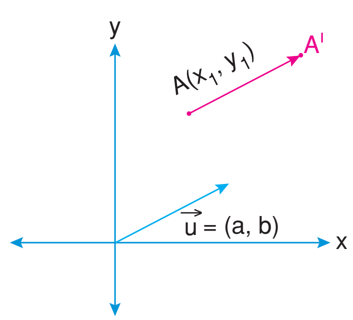


$ax + by + c = 0$

- Ox ekseni → $ax - by + c = 0$
- Oy ekseni → $-ax + by + c = 0$
- Orijin → $-ax - by + c = 0$
- $y = x$ → $ay + bx + c = 0$
- $y = -x$ → $-ay - bx + c = 0$
- $x = d$ → $a(2d - x) + by + c = 0$
- $y = e$ → $ax + b(2e - y) + c = 0$

DÖNÜŞÜMLER

ÖTELEME



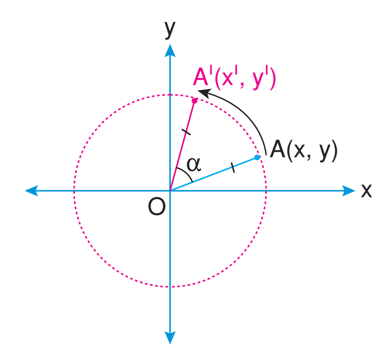
A noktasının $\vec{u}$ doğrultusunda ötelenmişi olan nokta A' dir.

$A' = A + \vec{u}$

$A' = (x_1, y_1) + (a, b)$

$A' = (x_1 + a, y_1 + b)$

DÖNDÜRME



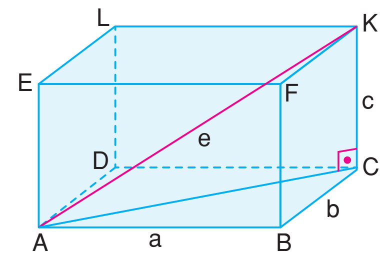
A noktasının pozitif yönde dönme merkezi orijin etrafında α derece dönüşümü olan nokta A'dır.

$A'(x', y') = (x\cos\alpha - y\sin\alpha, x\sin\alpha + y\cos\alpha)$

UZAY GEOMETRİ VE KATI CİSİMLER

PRİZMA

1 Dikdörtgenler Prizması



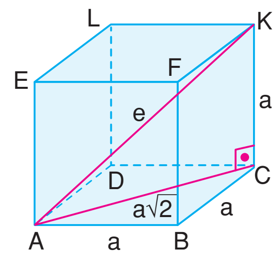
Yanal Alan = 2(ac + bc)

Alan = 2(ab + ac + bc)

Hacim = a • b • c

$e = \sqrt{a^2 + b^2 + c^2}$

2 Küp



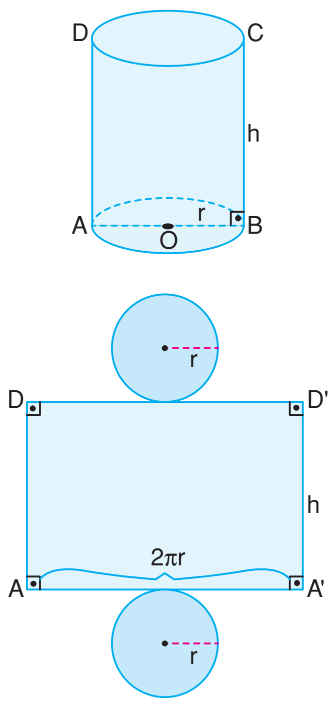
Yanal Alan = $4a^2$

Alan = $6a^2$

Hacim = a^3

$e = a\sqrt{3}$

3 Dik Silindir



Yanal Alan = $2\pi r \cdot h$

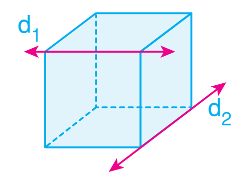
Alan = $2\pi rh + 2\pi r^2$

Hacim = $\pi r^2 \cdot h$

UZAY GEOMETRİ

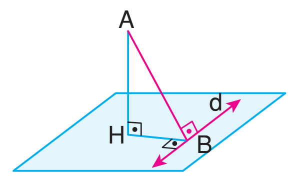
1

R^3'de aykırı doğrular paralel değildir, kesişmez.

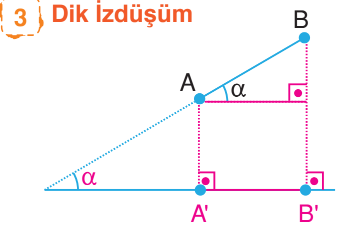


• d_1 ve d_2 aykırı doğrulardır.

2 Üç Dikme Teoremi



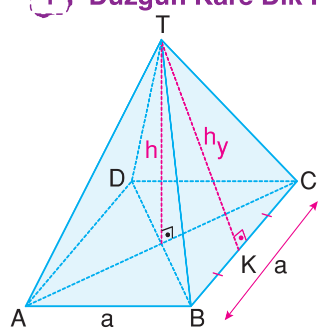
3 Dik İzdüşüm



$|A'B'| = |AB| \cdot \cos\alpha$

PİRAMİT

1 Düzgün Kare Dik Piramit

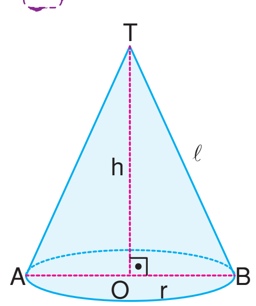


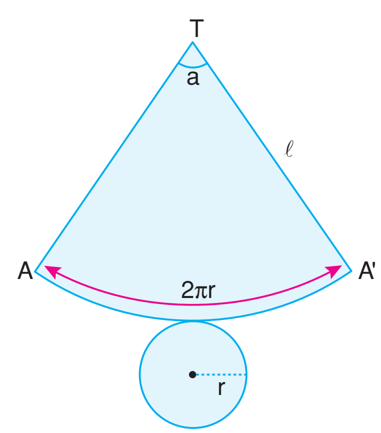
Yanal Alan = $4 \cdot \dfrac{a \cdot h_y}{2}$

Alan = $4 \cdot \dfrac{a \cdot h_y}{2} + a^2$

Hacim = $\dfrac{1}{3} a^2 \cdot h$

2 Dik Koni





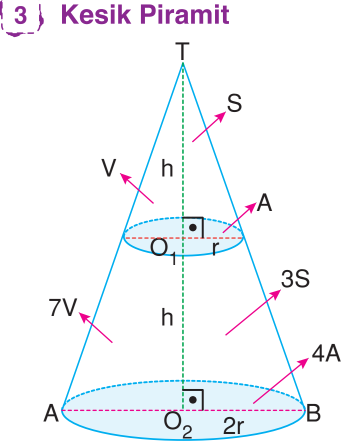
Yanal Alan = $\pi r \ell$

Alan = $\pi r \ell + \pi r^2$

Hacim = $\dfrac{1}{3} \pi r^2 \cdot h$

$\dfrac{r}{\ell} = \dfrac{\alpha}{360°}$

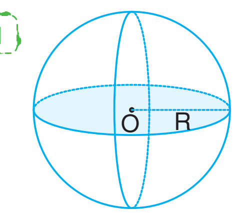
3 Kesik Piramit



$k = \dfrac{1}{2}$,	$k^2 = \dfrac{1}{4}$,	$k^3 = \dfrac{1}{8}$
uzunluk oranı	alan oranı	hacim oranı
$\dfrac{r}{2r}$	$\dfrac{A}{4A}$	$\dfrac{V}{7V}$

KÜRE VE DÖNEL CİSİMLER

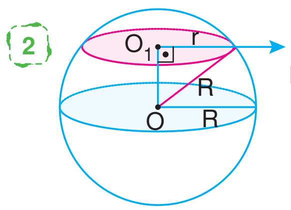
1



Alan = $4\pi R^2$

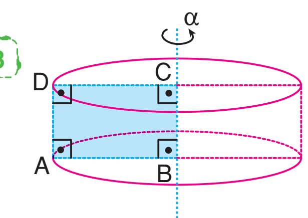
Hacim = $\dfrac{4}{3} \pi R^3$

2



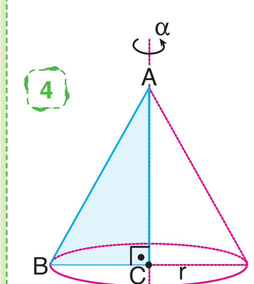
Küre düzlemde kesilirse oluşan kesit dairedir.

3



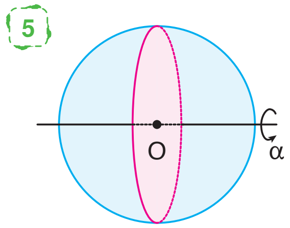
Dikdörtgen, kenarlarından biri etrafında α = 360° döndürülürse dik silindir oluşur.

4



Dik üçgen, dik kenarlarından biri etrafında α = 360° döndürülürse dik koni oluşur.

5



Daire, çap ekseni etrafında α = 180° döndürülürse küre oluşur.