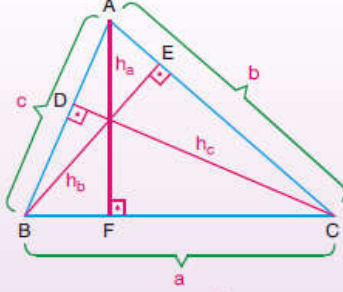


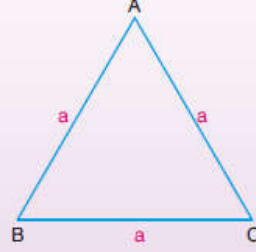
Dar Açılı Üçgenin Alanı



$$\begin{aligned} \text{Alan}(ABC) &= \frac{a \cdot h_a}{2} \\ &= \frac{b \cdot h_b}{2} \\ &= \frac{c \cdot h_c}{2} \end{aligned}$$

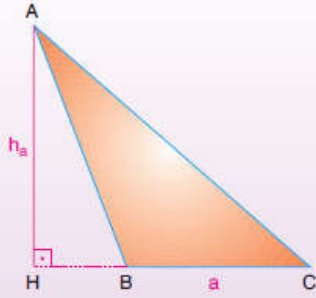
Eşkenar Üçgenin Alanı

Bir eşkenar üçgenin alanı, bir kenar uzunluğunun karesinin $\frac{\sqrt{3}}{4}$ katıdır.



$$\text{Alan}(ABC) = \frac{a^2 \sqrt{3}}{4}$$

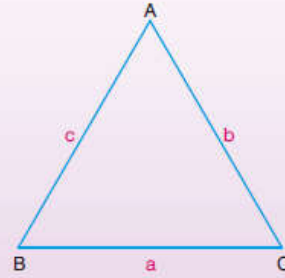
Geniş Açılı Üçgenin Alanı



$$\text{Alan}(ABC) = \frac{a \cdot h_a}{2}$$

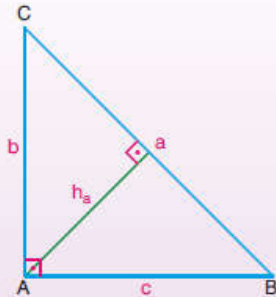
Üç Kenar Uzunluğu Bilinen Üçgenin Alanı (Heron Formülü)

Bir ABC üçgeninin kenar uzunlukları a, b, c ve çevresi $C(ABC) = 2u = a + b + c$ olmak üzere,



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

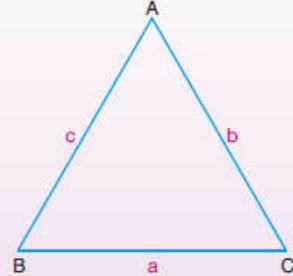
Dik Açılı Üçgenin Alanı



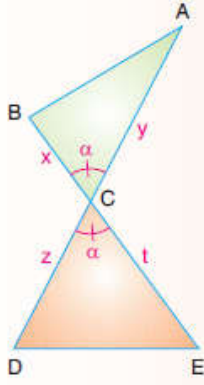
$$\begin{aligned} \text{Alan}(ABC) &= \frac{b \cdot c}{2} \\ &= \frac{a \cdot h_a}{2} \end{aligned}$$

Üçgenin Trigonometrik Alan Formülü

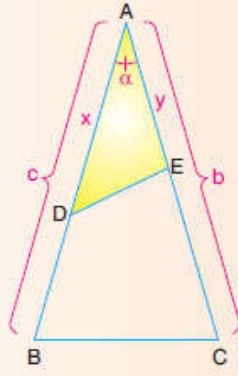
Bir üçgensel bölgenin alanı, iki kenarın uzunluğu ile bu kenarlar arasındaki açının sinüsünün çarpımının yarısına eşittir.



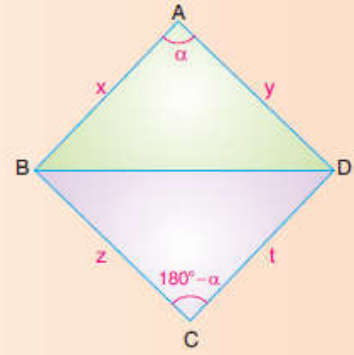
$$\begin{aligned} A(ABC) &= \frac{1}{2} \cdot b \cdot c \cdot \sin \hat{A} \\ &= \frac{1}{2} \cdot a \cdot c \cdot \sin \hat{B} \\ &= \frac{1}{2} \cdot a \cdot b \cdot \sin \hat{C} \end{aligned}$$



$$\frac{A(ABC)}{A(CDE)} = \frac{x \cdot y}{z \cdot t}$$

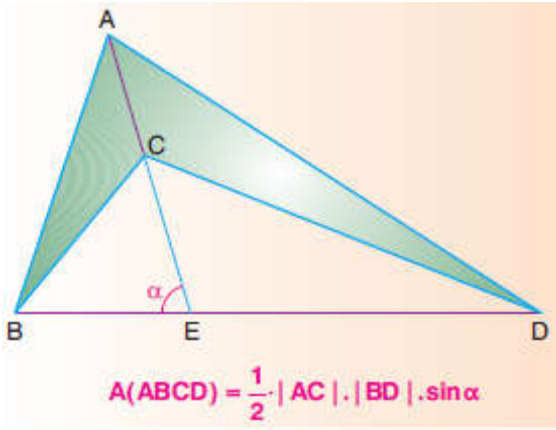


$$\frac{A(ADE)}{A(ABC)} = \frac{x \cdot y}{c \cdot b}$$



$$\frac{A(ABD)}{A(BCD)} = \frac{x \cdot y}{z \cdot t}$$

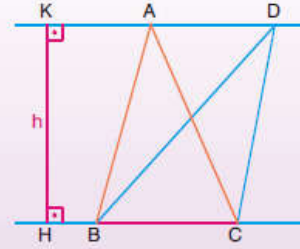
NOT



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

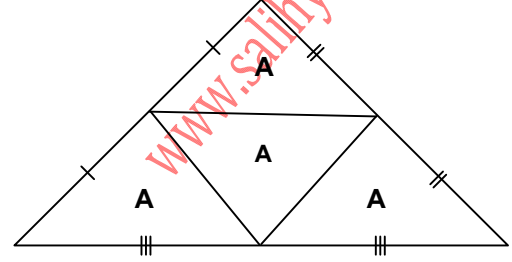
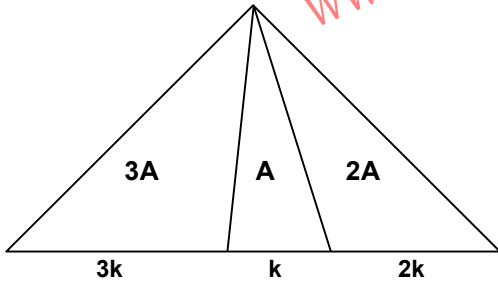
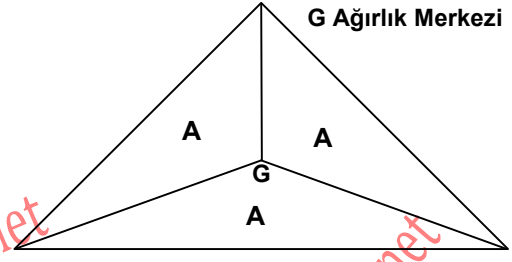
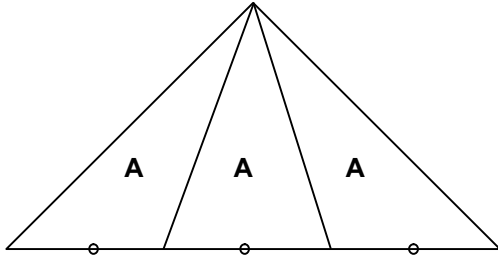
Üçgenin Alanı İle İlgili Özellikleri

- 1) Birer kenarları ve bu kenarlara ait yükseklikleri eşit olan üçgenel bölgelerin alanları eşittir.

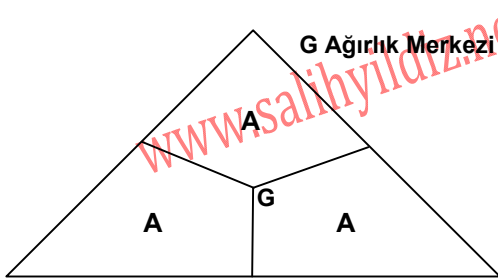
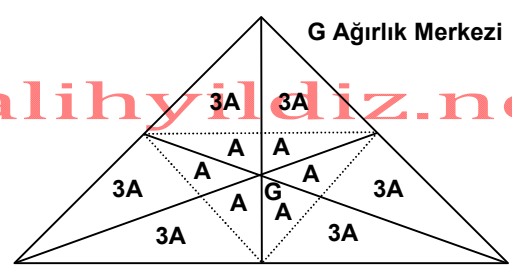
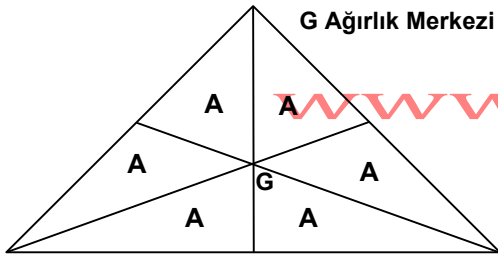


AD // BC ise Alan(ABC) = Alan(DBC)

Üçgenin Alanı İle İlgili Özellikleri

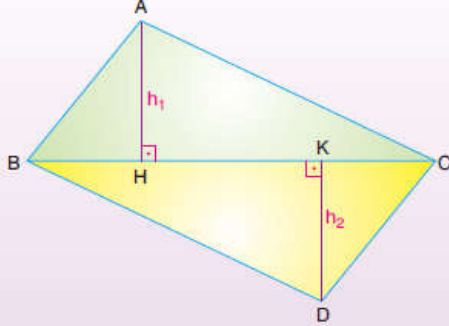


Kenarortayın Üçgende oluşturduğu Alan



NOT

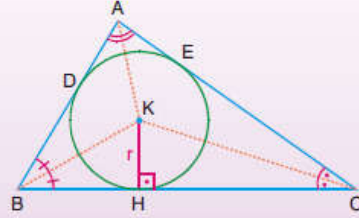
- 2) İki üçgenin tabanları eşit ise alanları oranı bu tabanlara ait yüksekliklerin oranına eşittir.



$$\frac{\text{Alan}(ABC)}{\text{Alan}(BCD)} = \frac{h_1}{h_2}$$

- 4) ABC üçgeninin iç teğet çemberinin yarıçapı r,

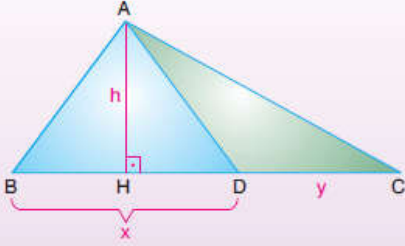
$$u = \frac{a+b+c}{2} \text{ olmak üzere,}$$



$$\text{Alan}(ABC) = u \cdot r$$

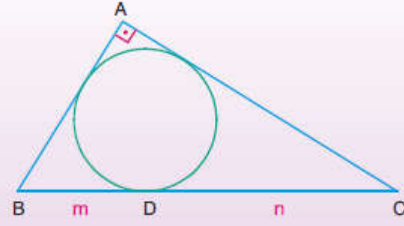
NOT

- 3) Yükseklikleri eşit olan iki üçgenel bölgenin alanlarının oranı, bu üçgenlere ait taban uzunluklarının oranına eşittir.



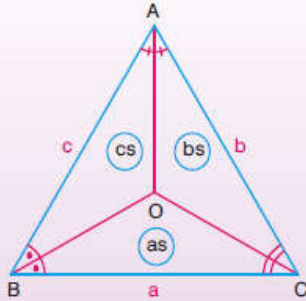
$$\frac{\text{Alan}(ABD)}{\text{Alan}(ADC)} = \frac{x}{y}$$

- 5) Bir dik üçgenin iç teğet çemberinin hipotenüsten ayırdığı parçaların çarpımı üçgenin alanına eşittir.



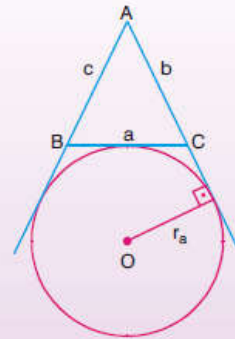
$$\text{Alan}(ABC) = m \cdot n$$

- 6) ABC üçgeninin kenar uzunlukları a, b, c ve [AO], [BO], [CO] ağırtay olmak üzere,



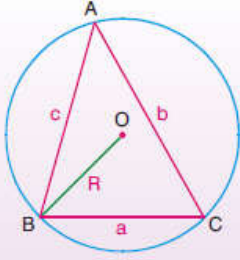
$$\frac{A(BOC)}{a} = \frac{A(AOC)}{b} = \frac{A(AOB)}{c}$$

- 7) Bir ABC üçgeninin kenar uzunlukları a, b, c, çevresi $\mathcal{C}(ABC) = 2u = a+b+c$ ve dış teğet çemberlerinin yarıçapları r_a, r_b, r_c ise



$$\text{Alan}(ABC) = r_a \cdot (u-a) = r_b \cdot (u-b) = r_c \cdot (u-c) \text{ dir.}$$

8)



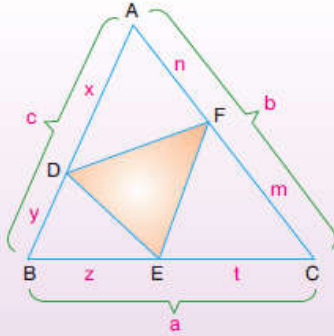
ABC üçgeninin çevrel çemberinin yarıçapı R ise

$$\text{Alan}(ABC) = \frac{a \cdot b \cdot c}{4R}$$

v v

9)

- |AD| = x
 - |DB| = y
 - |BE| = z
 - |EC| = t
 - |CF| = m
 - |FA| = n
- olmak üzere



$$\frac{\text{Alan}(DEF)}{\text{Alan}(ABC)} = \frac{x \cdot z \cdot m + y \cdot t \cdot n}{a \cdot b \cdot c}$$