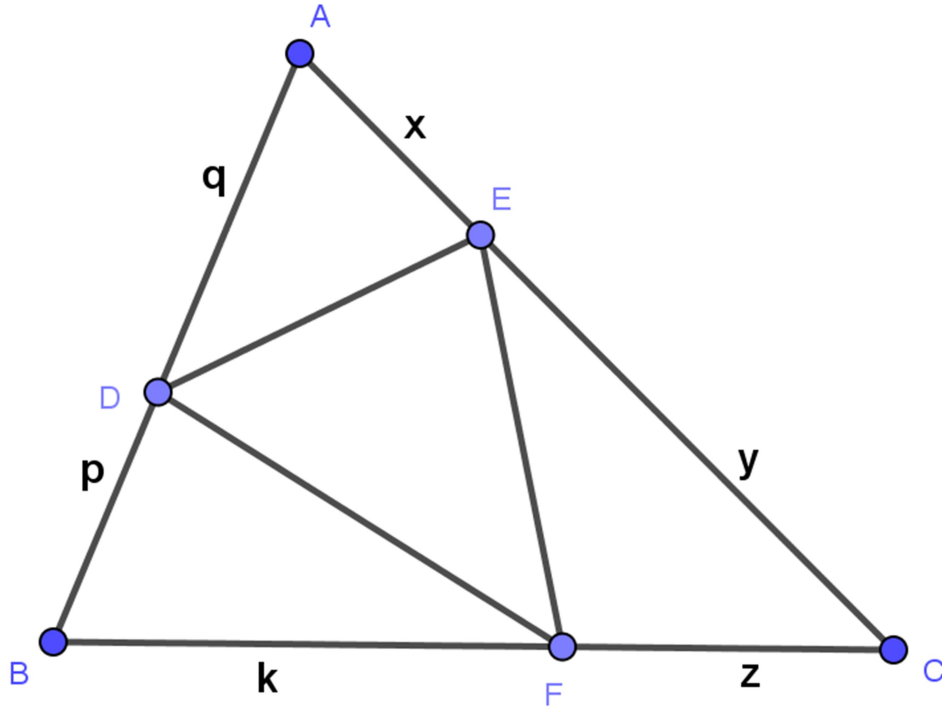


Halit Çelik



$$\frac{A(DEF)}{A(ABC)} = \frac{qky + pzx}{(p+q)(k+z)(x+y)}$$

İspat::

$A(ABC)=S$, $A(ADE)=S_1$, $A(BDF)=S_2$, $A(CEF)=S_3$ olsun. $A(DEF)=S - (S_1 + S_2 + S_3)$ olur.

$$S = \frac{1}{2}(p+q)(x+y)\sin A \text{ ve } \sin A = \frac{2S}{(p+q)(x+y)}$$

$$S = \frac{1}{2}(p+q)(k+z)\sin B \text{ ve } \sin B = \frac{2S}{(p+q)(k+z)}$$

$$S = \frac{1}{2}(k+z)(x+y)\sin C \text{ ve } \sin C = \frac{2S}{(k+z)(x+y)} \text{ olur.}$$

$$S_1 = \frac{1}{2}qx\sin A = \frac{1}{2}qx \cdot \frac{2S}{(p+q)(x+y)} = \frac{Sqx}{(p+q)(x+y)}$$

$$S_2 = \frac{1}{2}pk\sin B = \frac{1}{2}pk \cdot \frac{2S}{(p+q)(k+z)} = \frac{Spk}{(p+q)(k+z)}$$

$$S_{31} = \frac{1}{2} yz \sin C = \frac{1}{2} yz \cdot \frac{2S}{(k+z)(x+y)} = \frac{Syz}{(k+z)(x+y)} \text{ olur.}$$

Toplanırsa

$$\begin{aligned} S_1 + S_2 + S_3 &= S \left[\frac{qx}{(p+q)(x+y)} + \frac{pk}{(p+q)(k+z)} + \frac{yz}{(k+z)(x+y)} \right] \\ &= S \left[\frac{kqx + qxz + pkx + pky + pyz + qyz}{(p+q)(k+z)(x+y)} \right] \end{aligned}$$

Her iki taraf S den çıkarılırsa birinci taraf A(DEF) olur. Yani

$$\begin{aligned} A(DEF) &= S - S \left[\frac{kqx + qxz + pkx + pky + pyz + qyz}{(p+q)(k+z)(x+y)} \right] \\ \frac{A(DEF)}{S} &= 1 - \frac{kqx + qxz + pkx + pky + pyz + qyz}{(p+q)(k+z)(x+y)} = \\ &= \frac{pkx + pky + pzx + pzy + qkx + qky + qzx + qzy - kqx - qxz - pkx - pky - pyz - qyz}{(p+q)(k+z)(x+y)} \\ \frac{A(DEF)}{A(ABC)} &= \frac{pzx + qky}{(p+q)(k+z)(x+y)} \end{aligned}$$

Olarak bulunur.