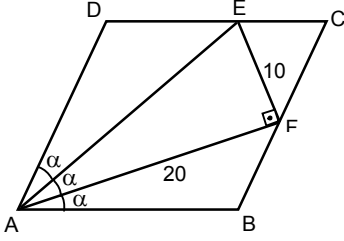


Problem-1



ABCD paralelkenar,

$$m(\angle BAF) = m(\angle FAE) = m(\angle EAD) = \alpha,$$

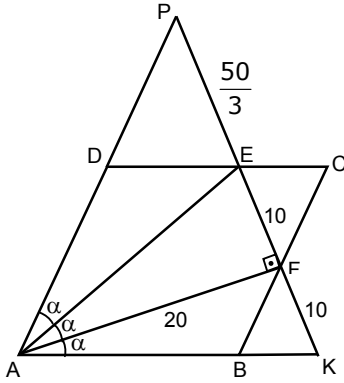
$AF \perp EG$,

$|AF| = 20$ br.ve $|EG| = 10$ br. olduğuna göre;

$A(ABCD)$ kaç br^2 'dir?

Çözüm

I. yol



$$\tan \alpha = \frac{1}{2}$$

$$\Rightarrow \tan 2\alpha = \frac{4}{3} = \frac{|PF|}{|AF|}$$

$$\Rightarrow |PF| = \frac{80}{3}, |PE| = \frac{50}{3}, |PK| = \frac{110}{3} \text{ olur.}$$

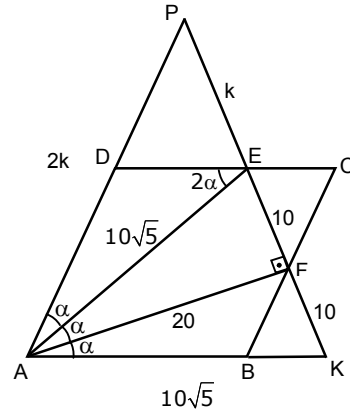
$A(ABCD) = A(\triangle AKED)$ ve $\triangle PDE \sim \triangle PAK$ olduğu

görüldür. Benzerlik oranı $\frac{|PE|}{|PK|} = \frac{5}{11}$ 'dir.

$$\begin{aligned} A(ABCD) &= A(\triangle AKED) = \frac{121 - 25}{121} \cdot A(\triangle PAK) \\ &= \frac{96}{121} \cdot \frac{|PK| \cdot |AF|}{2} \\ &= \frac{96}{121} \cdot \frac{\frac{110}{3} \cdot 20}{2} \\ &= \frac{3200}{11} \text{ br}^2 \text{ bulunur.} \end{aligned}$$

II. yol

(Hatice Mankan)



PAF üçgeninde, açıortay teoremine göre,

$$\frac{|PE|}{|PA|} = \frac{10}{20} \Rightarrow |PE| = k, |PA| = 2k \text{ ve}$$

$$|AE|^2 = |AF| \cdot |AP| - |EF| \cdot |PE| \Rightarrow |PE| = \frac{50}{3} \text{ olur.}$$

Pisagor teoremine göre, $|AE| = |AK| = 10\sqrt{5}$ olup

Tales teoremine göre, $\frac{|DE|}{|AK|} = \frac{|PE|}{|PK|} \Rightarrow |DE| = \frac{50\sqrt{5}}{11}$

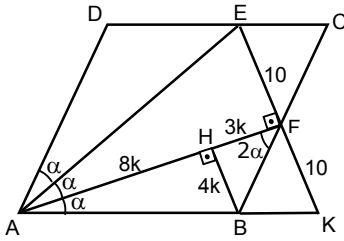
bulunur.

$$\begin{aligned} A(ABCD) &= A(\triangle AED) + A(\triangle AEK) \\ &= \frac{|AE| \cdot |DE| \cdot \sin 2\alpha}{2} + \frac{|EK| \cdot |AF|}{2} \\ &= \frac{10\sqrt{5} \cdot \frac{50\sqrt{5}}{11} \cdot 2 \cdot \frac{10}{10\sqrt{5}} \cdot \frac{20}{10\sqrt{5}}}{2} \\ &\quad + \frac{20 \cdot 20}{2} \\ &= \frac{3200}{11} \text{ br}^2 \text{ bulunur.} \end{aligned}$$

Not

$|PE| = \frac{50}{3}$ değeri bulunduktan sonra, I. yolda kullanılan benzerlikle çözüm tamamlanabilirdi.

III. yol (Muhammet Yavuz)



$$\tan \alpha = \frac{1}{2} = \frac{4k}{8k} \Rightarrow \tan 2\alpha = \frac{4}{3} = \frac{4k}{3k}$$

$$\Rightarrow |AF| = 11k = 20$$

$$\Rightarrow |BH| = \frac{80}{11} \text{ olur.}$$

$|EF| = |FK| = 10 \Rightarrow |BF| = |FC|$ olacağından,

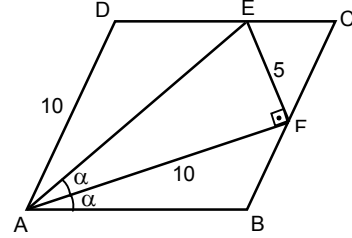
$$A(ABCD) = 4 \cdot A(\triangle ABF)$$

$$= 4 \cdot \frac{|AF| \cdot |BH|}{2}$$

$$= 4 \cdot \frac{20 \cdot \frac{80}{11}}{2}$$

$$= \frac{3200}{11} \text{ br}^2 \text{ bulunur.}$$

Problem- 2



ABCD paralelkenar,

$$m(\angle BAF) = m(\angle FAE) = \alpha ,$$

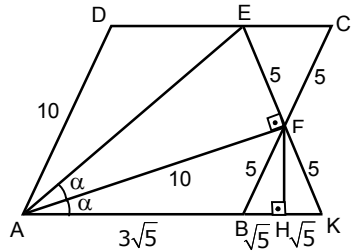
$AF \perp EF$,

$$|AF| = |AD| = 10 \text{ br. ve } |EF| = 5 \text{ br.}$$

olduğuna göre;

A(ABCD) kaç br^2 'dir?

Çözüm



$[EF] \cap [AB] = \{K\}$ olsun.

$$|EF| = |FK| = 5 \Rightarrow |BF| = |FC| = 5 \text{ olur.}$$

Pisagor ve Öklit bağıntılarına göre,

$$|AK| = 5\sqrt{5}, |BH| = |HK| = \sqrt{5} \text{ ve } |AB| = 3\sqrt{5} \text{ olur.}$$

$$A(ABCD) = 4 \cdot A(\triangle ABF)$$

$$= 4 \cdot \frac{3}{5} \cdot A(\triangle AFK)$$

$$= 4 \cdot \frac{3}{5} \cdot \frac{5 \cdot 10}{2}$$

$$= 60 \text{ br}^2 \text{ bulunur.}$$