

Sınıf		ARNAVUTKÖY KORKMAZ YİĞİT ANADOLU LİSESİ
Ad Soyad		2011-2012 EĞİTİM VE ÖĞRETİM YILI
No		10 Sınıf I. Dönem II. Geometri Yazılısı

**1** 10 puan

$$\vec{AC} \cdot (\vec{BH} + \vec{BA}) = ?$$

$$\begin{aligned} \vec{AC} \cdot \vec{BH} + \vec{AC} \cdot \vec{BA} &= \vec{AC} \cdot \vec{AK} - \vec{AC} \cdot \vec{AB} \\ &= 8\sqrt{5} \cdot 4 \cdot \cos \alpha - 8\sqrt{5} \cdot 4\sqrt{5} \cdot \cos 90^\circ \\ &= 8\sqrt{5} \cdot 4 \cdot \frac{2}{\sqrt{5}} - 0 \end{aligned}$$

$$= 64 \quad \text{(*)} \quad \text{②}$$

$$\vec{u} \cdot \vec{v} = |\vec{u}| \cdot |\vec{v}| \cdot \cos \alpha \quad \text{②}$$

$$|\vec{AH}|^2 = 4 \cdot 16 \quad (\text{öklid egr})$$

$$\rightarrow |\vec{AH}| = 8 \quad \text{①}$$

$$\rightarrow |\vec{AB}| = 4\sqrt{5} \quad \text{①}$$

$$\rightarrow |\vec{AC}| = 8\sqrt{5} \quad \text{①}$$

$$\cos \alpha = \frac{16}{8\sqrt{5}} = \frac{2}{\sqrt{5}}$$

**2** 5 + 5 puan

$$\vec{BC} - \vec{CA} = ?$$

$$\begin{aligned} \vec{BC} &= [6 - (-2), 0 - 1] = [8, -1] \quad \text{②} \\ \vec{CA} &= [3 - 6, 4 - 0] = [-3, 4] \quad \text{②} \end{aligned}$$

$$c(6,0) = [8, -1] - [-3, 4] = [11, -5] \quad \text{①}$$

$$x = ?$$

$$x^2 = (3\sqrt{3})^2 + 7^2$$

$$x^2 = 27 + 49$$

$$x^2 = 76$$

$$x = \sqrt{76}$$

$$x = 2\sqrt{19} \quad \text{①}$$

**3** 10 puan

$$\vec{ABC} \text{ eşkenar}$$

$$\vec{BD} \cdot \vec{BC} = ?$$

$$\begin{aligned} \vec{BD} \cdot \vec{BC} &= 4 \cdot 12 \cdot \cos 50^\circ \quad \text{①} \\ &= 4 \cdot 12 \cdot \frac{1}{2} \quad \text{①} \\ &= 24 \quad \text{①} \end{aligned}$$

$$\vec{BD} \cdot \vec{BA} = ?$$

$$\begin{aligned} \vec{BD} \cdot \vec{BA} &= CK \cdot CA \quad \text{①} \\ &= 4 \cdot 12 \cdot \cos 120^\circ \quad \text{①} \\ &= 4 \cdot 12 \cdot -\frac{1}{2} \quad \text{①} \\ &= -24 \quad \text{①} \end{aligned}$$

**4** 10 puan

$$\begin{aligned} \vec{u} &= 4\vec{e}_1 + 2\vec{e}_2 \quad = [4, 2] \\ \vec{v} &= 3\vec{e}_1 - 4\vec{e}_2 \quad = [3, -4] \\ x \cdot \vec{u} + y \cdot \vec{v} &= 4\vec{e}_1 - 20\vec{e}_2 \quad = [4, -20] \\ \rightarrow x = ? \quad y = ? & \end{aligned}$$

$$\begin{aligned} x[4, 2] + y[3, -4] &= [4, -20] \quad \text{①} \\ [4x, 2x] + [3y, -4y] &= [4, -20] \quad \text{②} \\ [4x+3y, 2x-4y] &= [4, -20] \quad \text{②} \end{aligned}$$

$$\begin{aligned} 4x+3y &= 4 \\ 2x-4y &= -20 \end{aligned}$$

$$\begin{aligned} 4x+3y &= 4 \\ -4x+8y &= +40 \end{aligned}$$

$$\begin{aligned} 11y &= 44 \\ y &= 4 \quad \text{①} \end{aligned}$$

$$\begin{aligned} 4x+3y &= 4 \\ 4x+12 &= 4 \\ 4x &= -8 \\ x &= -2 \quad \text{①} \end{aligned}$$

**5** 5 + 5 puan

$$\vec{AE} + \vec{BF} + \vec{CD} = ?$$

$$\begin{aligned} &= -\frac{2}{3}\vec{u} - \frac{2}{3}\vec{v} - \frac{2}{3}\vec{w} \quad \text{④} \\ &= -\frac{2}{3}(\vec{u} + \vec{v} + \vec{w}) \quad \text{④} \end{aligned}$$

$$\vec{u} + \vec{v} + \vec{w} = \vec{0} \quad \text{②}$$

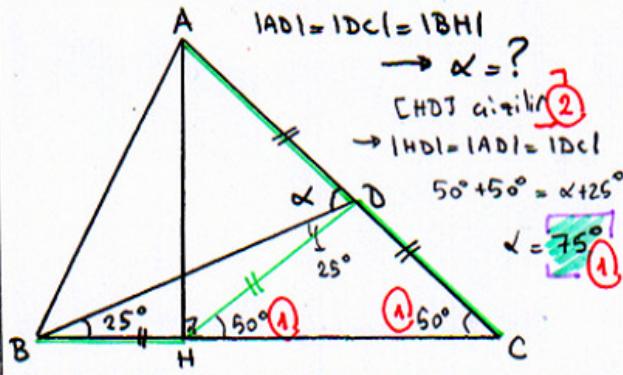
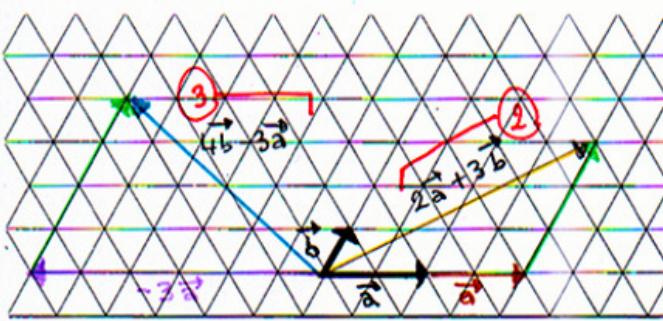
$$\vec{u} + \vec{v} + \vec{w} = \vec{0} \quad \text{②}$$

$$|BC| = ?$$

$$4 + 4\sqrt{3} \quad \text{①}$$

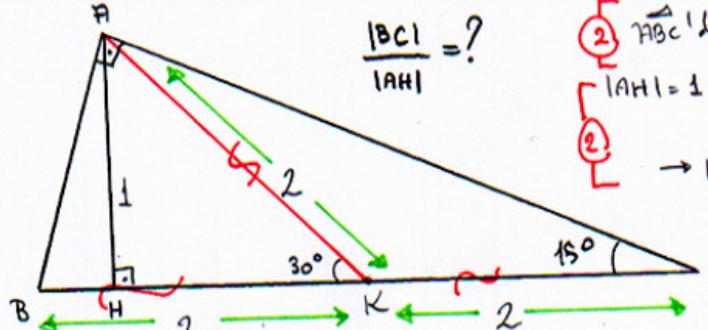
6

5 + 5 puan

 $2\vec{a} + 3\vec{b}$  ve  $4\vec{b} - 3\vec{a}$  vektörlerini çizin.

7

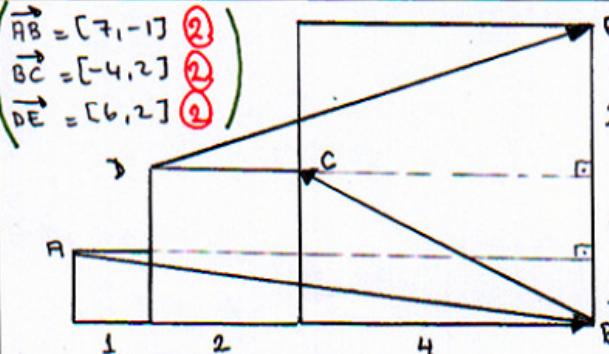
10 puan



2.  $\overline{ABC}$  'de hipotenüse ait kenarortay  $\omega$ :zilic [AK]  
 $|AH| = 1$  olsun (ki  $|BC|$  uzunluğu istenen oranı  
 versin)  $\frac{|BC|}{|AH|} = |BC| \cdot \frac{1}{1} = |BC|$ )  
 $\rightarrow |AK| = 2 \rightarrow |BK| = |KC| = 2$  ②  
 Hipotenüse ait kenarortay,  
 hipotenüsün yarısı uzunluğu addidir.  
 $C \rightarrow |BC| = 4$  ②  $\frac{|BC|}{|AH|} = \frac{4}{1} = 4$  ②

8

10 puan



E. Karelrin kenar uzunlukları verilmiştir.

$$\overrightarrow{AB} \cdot \overrightarrow{BC} = ?$$

$$\overrightarrow{AB} \cdot \overrightarrow{DE} = ?$$

$$2. [7, -1] \cdot [-4, 2]$$

$$[7, -1] \cdot [6, 2]$$

$$= -28 - 2$$

$$= 42 - 2$$

$$= -30$$

$$= 40$$

$$(*) [x_1, y_1] \cdot [x_2, y_2] = x_1 \cdot x_2 + y_1 \cdot y_2$$

9

10 puan

$$\cdot \vec{a}, \vec{b} \in \mathbb{R}^2$$

$$\cdot |\vec{a}| = 4, |\vec{b}| = 5$$

$$① (\vec{a} - \vec{b})^2 = \vec{a}^2 - 2\vec{a} \cdot \vec{b} + \vec{b}^2$$

$$② |\vec{a} - \vec{b}|^2 = |\vec{a}|^2 - 2\vec{a} \cdot \vec{b} + |\vec{b}|^2$$

$$\vec{a} \cdot \vec{b} = |\vec{a}| \cdot |\vec{b}| \cdot \cos \theta = \frac{-23}{2}$$

$$|\vec{a} - \vec{b}| = 8$$

$$8^2 = 4^2 - 2\vec{a} \cdot \vec{b} + 5^2$$

$$4 \cdot 5 \cdot \cos \theta = \frac{-23}{2}$$

•  $\vec{a}$  ve  $\vec{b}$ 'leri arasındaki

$$2\vec{a} \cdot \vec{b} = 16 + 25 - 64$$

açı  $\theta$  ise;

$$2\vec{a} \cdot \vec{b} = -23$$

$$\vec{a} \cdot \vec{b} = ?$$

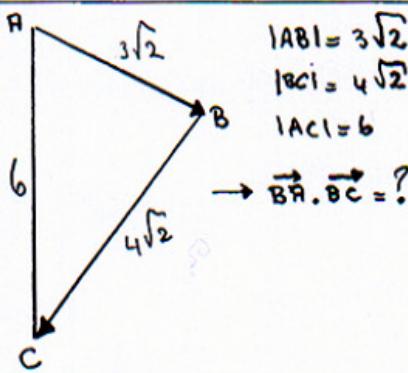
$$\vec{a} \cdot \vec{b} = \frac{-23}{2}$$

$$\cos \theta = \frac{-23}{40}$$

$$\cos \theta = ?$$

10

10 puan



$$③ \overrightarrow{AC} = \overrightarrow{AB} + \overrightarrow{BC}$$

$$|\overrightarrow{AC}|^2 = (\overrightarrow{AB} + \overrightarrow{BC})^2 = \overrightarrow{AB}^2 + 2\overrightarrow{AB} \cdot \overrightarrow{BC} + \overrightarrow{BC}^2$$

$$|\overrightarrow{AC}|^2 = |\overrightarrow{AB}|^2 + 2|\overrightarrow{AB}| \cdot |\overrightarrow{BC}| \cos \theta + |\overrightarrow{BC}|^2$$

$$6^2 = (3\sqrt{2})^2 + 2|\overrightarrow{AB}| \cdot |\overrightarrow{BC}| + (4\sqrt{2})^2$$

$$36 = 18 + 2|\overrightarrow{AB}| \cdot |\overrightarrow{BC}| + 32$$

$$+ 2\overrightarrow{BA} \cdot \overrightarrow{BC} = 50 - 36$$

$$\overrightarrow{BA} \cdot \overrightarrow{BC} = 7$$