

$$\begin{aligned}
1. \quad & 2\overline{AB} - 2\overline{CB} + \overline{CA} \\
& = 2(\overline{AB} + \overline{BC}) + \overline{CA} \\
& = 2\overline{AC} + \overline{CA} \\
& = \overline{AC} \\
& \text{Doğru cevap } \mathbf{d} \text{ dir.}
\end{aligned}$$

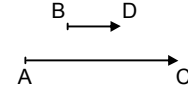
$$\begin{aligned}
2. \quad & \overline{AC} + \overline{BD} = \overline{AB} + \overline{AD} + \overline{BA} + \overline{AD} \\
& \Rightarrow \overline{AC} + \overline{BD} = 2\overline{AD} \\
& \overline{AC} + \overline{BD} = x\overline{AB} + y\overline{AD} \\
& \Rightarrow (x, y) = (0, 2) \\
& \text{Doğru cevap } \mathbf{a} \text{ dir.}
\end{aligned}$$

$$\begin{aligned}
3. \quad & \overline{AE} = \overline{AD} + \frac{1}{3}\overline{AB} \\
& \overline{AF} = \overline{AD} + \frac{2}{3}\overline{AB} \\
& + \overline{AK} = \overline{AB} + \frac{1}{2}\overline{AD} \\
& \overline{T} = 2\overline{AB} + \frac{5}{2}\overline{AD} \\
& (x, y) = \left(2, \frac{5}{2}\right) \\
& \text{Doğru cevap } \mathbf{e} \text{ dir.}
\end{aligned}$$

$$\begin{aligned}
4. \quad & \vec{v} = \overline{AE} + \overline{BD} - \overline{AD} \\
& \Rightarrow \vec{v} = \overline{AB} + \overline{BE} + \overline{BC} + \overline{CD} - 2\overline{AB} - \overline{CD} \\
& \Rightarrow \vec{v} = \overline{BE} \\
& \Rightarrow |\vec{v}| = 1 \text{ birim} \\
& \text{Doğru cevap } \mathbf{a} \text{ dir.}
\end{aligned}$$

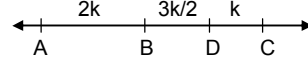
$$\begin{aligned}
5. \quad & \overline{AD} = \overline{AB} + \overline{BC} + \overline{CD} \\
& \Rightarrow \overline{AD} - \overline{BC} = 2\vec{a} - \vec{a} \\
& \Rightarrow \overline{AD} - \overline{BC} = \vec{a} \\
& \text{Doğru cevap } \mathbf{c} \text{ dir.}
\end{aligned}$$

$$\begin{aligned}
6. \quad & \overline{AC} = 3\overline{BD} \text{ ise} \\
& \overline{AC} // \overline{BD} \text{ dir.}
\end{aligned}$$



$$\overline{AB} = -2\overline{CD} \text{ olması}$$

A, B, C, D noktalarının doğrusal olmasını gerektirir.



$$\overline{AD} = m\overline{BC} \Rightarrow |\overline{AD}| = m|\overline{BC}|$$

$$\Rightarrow \frac{7k}{2} = m \cdot \frac{5k}{2}$$

$$\Rightarrow m = \frac{7}{5} \text{ bulunur.}$$

Doğru cevap **a** dir.

$$\begin{aligned}
7. \quad & \overline{EF} = \overline{EA} + \overline{AB} + \overline{BF} \quad (1) \\
& + \overline{EF} = \overline{EC} + \overline{CD} + \overline{DF} \quad (2) \\
& 2\overline{EF} = \overline{AB} + \overline{CD} \\
& \overline{EF} = \frac{1}{2}\overline{AB} + \frac{1}{2}\overline{CD} \\
& (x, y) = \left(\frac{1}{2}, \frac{1}{2}\right) \\
& \text{Doğru cevap } \mathbf{b} \text{ dir.}
\end{aligned}$$

$$\begin{aligned}
8. \quad & \overline{AC} + \overline{BD} = \overline{AB} + \overline{BC} + \overline{BA} + \overline{AD} \\
& \Rightarrow \overline{AC} + \overline{BD} = \overline{AD} + \overline{BC} \\
& \text{Doğru cevap } \mathbf{b} \text{ dir.}
\end{aligned}$$

9.

Doğru cevap **e** dir.

10. \overline{AD} nü \overline{AB} ve \overline{CD} doğrultusunda bileşenlerine ayırırsak

$$\overline{AD} = 2\overline{AB} + 2\overline{CD} \quad (1)$$

olduğu görülür.

$\overline{CD} = \overline{AF}$ olduğundan, aynı yolla,

$$\overline{AE} = 2\overline{AF} + \overline{KE}$$

$\Rightarrow \overline{AE} = \overline{AB} + 2\overline{CD}$ (2) olduğu görülür.

(1) ve (2) den

$$\overline{AD} + \overline{AE} = 3\overline{AB} + 4\overline{CD} \text{ bulunur.}$$

$(x, y) = (3, 4)$ olur.

Doğru cevap **b** dir.

11. $\overline{DH} = 4\vec{u}$

$$\overline{FC} = -3\vec{u}$$

$$\overline{CA} = -2\vec{u}$$

$$\overline{DH} + 2\overline{FC} - 3\overline{CA} = 4\vec{u} - 6\vec{u} + 6\vec{u}$$

$$\Rightarrow \overline{DH} + 2\overline{FC} - 3\overline{CA} = 4\vec{u}$$

$$\Rightarrow 2\overline{FC} = 4\vec{u}$$

$$\Rightarrow \overline{FX} = 2\vec{u}$$

$$\Rightarrow X = H \text{ olur.}$$

Doğru cevap **e** dir.

12. $\overline{AB} = \vec{u} + 2\vec{v}$

$$\overline{BC} = 2\vec{u} - 3\vec{v}$$

$$\overline{CD} = 2\vec{u} + 2\vec{v}$$

$$3\overline{AB} + 2\overline{BC} - 2\overline{CD} = \overline{XF}$$

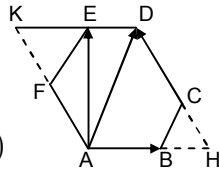
$$\Rightarrow 3(\vec{u} + 2\vec{v}) + 2(2\vec{u} - 3\vec{v}) - 2(2\vec{u} + 2\vec{v}) = \overline{XF}$$

$$\Rightarrow 3\vec{u} - 4\vec{v} = \overline{XF}$$

$$\Rightarrow \overline{FX} = -3\vec{u} + 4\vec{v}$$

$$\Rightarrow X = E \text{ olur.}$$

Doğru cevap **e** dir.



13. $(x + 2)\overline{BC} + (2x - y)\overline{CD} = \overline{AD} - \overline{AB}$

$$\Rightarrow (x + 2)\overline{BC} + (2x - y)\overline{CD} = \overline{AD} + \overline{AB}$$

$$\Rightarrow (x + 2)\overline{BC} + (2x - y)\overline{CD} = \overline{BD}$$

$$\Rightarrow (x + 2)\overline{BC} + (2x - y)\overline{CD} = \overline{BC} + \overline{CD}$$

$$\Rightarrow \left. \begin{aligned} x + 2 &= 1 \\ 2x - y &= 1 \end{aligned} \right\}$$

$$\Rightarrow x = -1, \quad y = -3$$

$$\Rightarrow x + y = -4$$

Doğru cevap **a** dir.

14. $\overline{AC} = \vec{u} - 2\vec{v}$, $\overline{CD} = \vec{u} + 3\vec{v}$,

$$\overline{DE} = 2\vec{u} - 2\vec{v}, \quad \overline{BD} = 2\vec{u} - \vec{v},$$

$$\overline{CE} = 3\vec{u} + \vec{v}$$

$$2(\vec{u} - 2\vec{v}) + (\vec{u} + 3\vec{v}) - (2\vec{u} - 2\vec{v}) = x(2\vec{u} - \vec{v}) + y(3\vec{u} + \vec{v})$$

$$\Rightarrow \left. \begin{aligned} 2x + 3y &= 1 \\ -x + y &= 1 \end{aligned} \right\}$$

$$x - y = -1$$

Doğru cevap **c** dir.

15. $\overline{BD} = \overline{BA} + \overline{AD}$ $\overline{AD} = y\overline{AC}$ olsun.

$$\Rightarrow \overline{BD} = \overline{BA} + y\overline{AC}$$

$$\Rightarrow \overline{BD} = \overline{BA} + y(-\overline{BA} + \overline{BC})$$

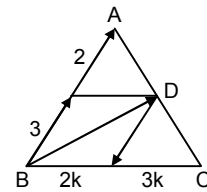
$$\Rightarrow \overline{BD} = (1 - y)\overline{BA} + y\overline{BC}$$

$$\overline{BD} = \frac{3}{5}\overline{BA} + x\overline{BC} \text{ idi.}$$

$$1 - y = \frac{3}{5}$$

$$\Rightarrow x = y = \frac{2}{5} \text{ olur.}$$

2. yol



Doğru cevap **c** dir.

- 16.** \overline{DE} nü \overline{BA} ve \overline{BC} doğrultusunda bileşenlerine ayıralım.

$$\overline{DE} = \overline{DF} + \overline{FE} \text{ ve}$$

$$\overline{DE} = x\overline{BA} + \frac{1}{6}\overline{BC} \text{ ise}$$

$$\overline{DF} = x\overline{BA} \text{ ve } \overline{FE} = \frac{1}{6}\overline{BC} \text{ dir.}$$

II. Tales Teoreminden

$$\frac{|AF|}{|AB|} = \frac{|FE|}{|BC|} \Rightarrow \overline{AF} = \frac{1}{6}\overline{AB}$$

$$\overline{DF} = \left(1 - \frac{1}{3} - \frac{1}{6}\right)\overline{AB} \Rightarrow \overline{DF} = \frac{1}{2}\overline{AB}$$

Doğru cevap **a** dir.

- 17.** $\overline{EF} = \overline{EB} + \overline{BC} + \overline{CF}$

$$\Rightarrow \overline{EF} = \frac{1}{3}\overline{AB} + \overline{BC} - \frac{1}{2}\overline{AB}$$

$$\Rightarrow \overline{EF} = -\frac{1}{6}\overline{AB} + \overline{BC} \quad (1)$$

$$\overline{GH} = \overline{GA} + \overline{AB} + \overline{BH}$$

$$\Rightarrow \overline{GH} = -\frac{1}{3}\overline{BC} + \overline{AB} + \frac{1}{2}\overline{BC}$$

$$\Rightarrow \overline{GH} = \overline{AB} + \frac{1}{6}\overline{BC} \quad (2)$$

(1) ve (2) den

$$\overline{EF} + \overline{GH} = \frac{5}{6}\overline{AB} + \frac{7}{6}\overline{BC}$$

$$x = \frac{5}{6} \text{ olur.}$$

Doğru cevap **d** dir.

- 18.** $\overline{DE} = -\frac{1}{3}\overline{BA} + \frac{2}{3}(\overline{BA} + \overline{AC})$

$$\Rightarrow \overline{DE} = \frac{1}{3}\overline{BA} + \frac{2}{3}\overline{AC}$$

$$\Rightarrow \overline{DA} = \frac{1}{3}\overline{BA}$$

$$\Rightarrow \overline{DB} = \frac{2}{3}\overline{BA}$$

Doğru cevap **d** dir.

- 19.** $\overline{AE} = \vec{x}$ vektörünü

\vec{a} ve \vec{b} türünden yazabilmek için, x vektörünü \vec{a} ve \vec{b} doğrultularında bileşenlerine ayırmak gerekir.

$$\overline{AE} = \overline{AC} + \overline{CE}$$

$$|\overline{CE}| = |\vec{b}|$$

$$\overline{CE} = |\vec{b}| \cdot \frac{\vec{a}}{|\vec{a}|}$$

$$\Rightarrow \vec{x} = \vec{b} - \frac{|\vec{b}|}{|\vec{a}|} \cdot \vec{a} \text{ bulunur.}$$

Doğru cevap **b** dir.

- 20.** \overline{EF} nü \overline{AB} ve

\overline{BC} doğrultusunda bileşenlerine ayıralım.

$$\overline{EF} = \overline{EK} + \overline{KF} \text{ ve}$$

$$\overline{EF} = x\overline{AB} + y\overline{BC} \text{ ise}$$

$$\overline{EK} = \frac{1}{2}(\overline{AB} + \overline{DC})$$

$$\Rightarrow \overline{EK} = \frac{1}{2}\left(\overline{AB} + \frac{1}{2}\overline{AB}\right)$$

$$\Rightarrow \overline{EK} = \frac{3}{4}\overline{AB} \Rightarrow x = \frac{3}{4}$$

Doğru cevap **d** dir.

