

Soluții

$$\begin{aligned} \overrightarrow{AB} + \overrightarrow{AD} + \overrightarrow{AC} &= 2\overrightarrow{AC} \\ \mathbf{1.a)} \quad |\overrightarrow{AB} + \overrightarrow{AD} + \overrightarrow{AC}| &= 2|\overrightarrow{AC}| = 2\sqrt{2}. \end{aligned}$$

$$\mathbf{1.b)} \quad \left. \begin{aligned} \overrightarrow{AB} \text{ are coordonatele } (x-1; y-2), \text{ unde } B(x; y). \\ \overrightarrow{AB} = \vec{a} = 4\vec{i} + 3\vec{j} \end{aligned} \right\} \Rightarrow \begin{cases} x-1=4 \\ y-2=3 \end{cases} \Rightarrow B(5;5).$$

$$\begin{aligned} \frac{BC}{\sin A} &= \frac{AC}{\sin B}. \\ \mathbf{2.a)} \quad \sin B &= \frac{\sqrt{3}}{2} \Rightarrow m(\sphericalangle B) = 60^0 \Rightarrow m(\sphericalangle C) = 90^0 \Rightarrow \\ \sigma[ABC] &= \frac{BC \cdot AC}{2} = \frac{\sqrt{6} \cdot \sqrt{2}}{2} = \sqrt{3}. \end{aligned}$$

$$\begin{aligned} \mathbf{2.b)} \quad \sin A &= \frac{a}{2R}; \sin B = \frac{b}{2R}; \sin C = \frac{c}{2R} \text{ (vezi teorema sinusului).} \\ \text{Înlocuind obținem } c^2 &= a^2 + b^2 \Rightarrow \triangle ABC \text{ este dreptunghic în } C. \end{aligned}$$

$$\mathbf{3.a)} \quad \left. \begin{aligned} AB &= \sqrt{13} \\ AC &= \sqrt{26} \\ BC &= \sqrt{13} \end{aligned} \right\} \Rightarrow AB^2 + BC^2 = AC^2 \text{ și } AB = BC \Rightarrow \triangle ABC \text{ este dreptunghic isoscel.}$$

$$\mathbf{3.b)} \quad \overrightarrow{AB} = \overrightarrow{DC} \Leftrightarrow (-2; -3) = (4-x; -1-y) \Rightarrow x=6, y=2 \Rightarrow D(6;2).$$