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کلاس: دهم تجربی ۴

نام و نام خانوادگی: علی و سارا بدین

$$\begin{aligned} & (\sin 135^\circ + \sin 45^\circ) (\cos 315^\circ - \cos 135^\circ) = \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \right) \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \right) \\ & = \left(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} \right) \left(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2} \right) = \left(\frac{\sqrt{2}}{2} \right)^2 - \left(\frac{\sqrt{2}}{2} \right)^2 = \frac{2}{4} - \frac{2}{4} = 0 \end{aligned}$$

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$$\begin{aligned} & 1 + 2 \cos^2 45^\circ = 1 + 2 \times \frac{1}{2} = 1 + 1 = 2 \\ & \cos^2 315^\circ + \cos^2 225^\circ = \left(\frac{\sqrt{2}}{2} \right)^2 + \left(-\frac{\sqrt{2}}{2} \right)^2 = \frac{2}{4} + \frac{2}{4} = 1 \end{aligned}$$

$$AH = \sin 45^\circ \times \sqrt{5} = \frac{\sqrt{2}}{2} \times \sqrt{5} = \frac{\sqrt{10}}{2} = \frac{2\sqrt{5}}{2} = \sqrt{5}$$

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$$(2\sqrt{5})^2 = \sqrt{5}^2 + HC^2 = 12 \text{ پس } HC^2 = 12 - 5 = 9 = HC \Rightarrow HC = 3$$

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$$\frac{\sqrt{5}}{2} \times AC = 9 \Rightarrow AC = \frac{9}{\frac{\sqrt{5}}{2}} = \frac{18 \times \sqrt{5}}{\sqrt{5} \times \sqrt{5}} = 6\sqrt{5}$$

$$AH = \frac{1}{2} \times 6\sqrt{5} = 3\sqrt{5} \quad \sin B = \frac{3\sqrt{5}}{3\sqrt{5}} = \frac{1}{2} \Rightarrow B = 30^\circ$$

$$B = 30^\circ \quad \text{در } \triangle ABC$$

$$\frac{\sqrt{5}}{2} \times AD = 50\sqrt{5} \quad \frac{1}{2} \times AC = 50\sqrt{5}$$

$$AD = 100 \quad AC = 100\sqrt{5}$$

$$BD = \frac{1}{2} \times 100 = 50 \quad BC = \frac{\sqrt{5}}{2} \times 100\sqrt{5} = 100$$

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$$BC - BD = 100 - 50 = 50$$

$$AC \times \frac{1}{2} = 50 \quad CD^2 = 1^2 + 1^2 = 2 \quad CD = \sqrt{2}$$

$$AC = 100 \quad \sin \alpha = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$$

$$BC = \frac{\sqrt{5}}{2} \times 100 = 50\sqrt{5}$$

$$AC = x \quad CH = \frac{\sqrt{2}}{2} \times BH = \frac{\sqrt{2}}{2} \times \frac{\sqrt{5}}{2} \times x = \frac{\sqrt{10}}{4} x$$

$$\frac{\sqrt{5}}{2} x = \frac{\sqrt{10}}{4} x \quad \frac{AB}{AC} = \frac{\sqrt{5} + \sqrt{2}}{2} = \frac{\sqrt{5} + \sqrt{2}}{2}$$

$$BH = \frac{\sqrt{5}}{2} x \quad AB = \frac{\sqrt{5}}{2} x + \frac{\sqrt{2}}{2} x = \frac{\sqrt{5} + \sqrt{2}}{2} x$$

$$AB = \frac{\sqrt{5}}{2} x + \frac{\sqrt{2}}{2} x = \frac{\sqrt{5} + \sqrt{2}}{2} x$$

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$$S(AEB) = \frac{r \sin B \times r}{r_1} = r \sin B$$

$$S(BCE) = \frac{r \sin B \times r}{r} = r \sin B$$

$$S(AEB) = \frac{r \sin B \times r}{r_1} = r \sin B$$

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$$\frac{\sqrt{3}}{r} \times r \times r = 3\sqrt{3}$$

$$\frac{1}{r} \times r \times r \times \frac{\sqrt{3}}{r} = 3\sqrt{3}$$

$$r + 15 = r_0 \rightarrow \sqrt{r_0} = P \cos \theta \frac{r}{\sqrt{r_0}} = \frac{\sqrt{3}r}{r_0}$$

$$110 - 100 = r_0 \rightarrow r_0 = 10 = r_0 \quad \sqrt{3} \times BA = \frac{a}{r} \text{ or } BA = \frac{a}{\sqrt{3}}$$

$$B_0 = \frac{a\sqrt{3}}{r} \Rightarrow b = \frac{a}{r} \quad m = \frac{\sqrt{3}}{r} = \sqrt{3} \Rightarrow mb = \sqrt{3} \times \frac{a}{r} = \frac{a\sqrt{3}}{r}$$

$$f\left(\frac{a\pi}{5}\right) = \cos\left(\frac{a\pi}{5} + \frac{a\pi}{5}\right) + \sin\left(\frac{a\pi}{5} - \frac{a\pi}{5}\right) = \cos\frac{2a\pi}{5} + \sin\frac{0}{5} = \cos\frac{2a\pi}{5} + 0$$

$$-\cos\frac{a\pi}{5} + \cos\frac{a\pi}{5} + \cos\frac{a\pi}{5} = \cos\frac{a\pi}{5} = \frac{\sqrt{3}}{r} \times \sqrt{3} = \frac{3}{r}$$

$$-\sqrt{3} = -\sqrt{3} \quad \boxed{-\sqrt{3}}$$

$$\sin\left(\frac{15\pi}{5} + x\right) + \cos\left(\frac{15\pi}{5} - x\right) = -\sin x + \cos x$$

$$\cos\left(\frac{15\pi}{5} + x\right) - \sin\left(\frac{15\pi}{5} - x\right) = -\cos x + \sin x$$