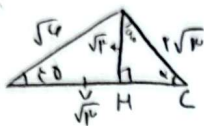


الف) $(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2})(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}) = (\frac{\sqrt{2}}{2})^2 - (\frac{\sqrt{2}}{2})^2 = \frac{2}{4} - \frac{2}{4} = -\frac{1}{2}$

ب) $\frac{1 + 2(\frac{1}{\sqrt{2}})^2}{2(\frac{1}{\sqrt{2}})^2 + 2(\frac{1}{\sqrt{2}})^2} = \frac{1 + \frac{2}{2}}{2 + 2} = \frac{2}{4} = \frac{1}{2}$

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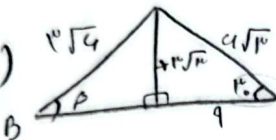
الف)



$\sin \alpha = \frac{\sqrt{3}}{2\sqrt{3}} = \frac{1}{2} \rightarrow \alpha = 30^\circ$

$\cos \alpha = \frac{\sqrt{3}}{2} = \frac{MC}{2\sqrt{3}} \rightarrow MC = \sqrt{3}$

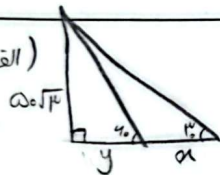
ب)



$\sin \beta = \frac{3\sqrt{3}}{3\sqrt{4}} = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2} \rightarrow \beta = 45^\circ$

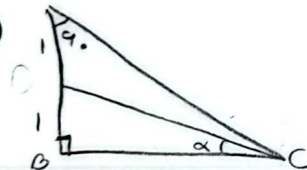
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الف)



$\frac{5\sqrt{3}}{5} = \sqrt{3} \rightarrow \alpha = 60^\circ$, $\frac{5\sqrt{3}}{5\sqrt{2}} = \frac{1}{\sqrt{2}} \rightarrow \alpha + \beta = 150^\circ \Rightarrow \alpha = 150^\circ$

ب)

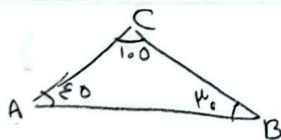


$\tan 30^\circ = \frac{1}{BC} \rightarrow BC = \sqrt{3}$

$\tan \alpha = \left(\frac{\sqrt{3}}{DC}\right)^2 + \left(\frac{1}{DC}\right)^2 = 1 \rightarrow \frac{3}{DC^2} + \frac{1}{DC^2} = 1 \rightarrow \frac{4}{DC^2} = 1 \rightarrow DC^2 = 4 \rightarrow DC = 2$

$\sin \alpha = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$

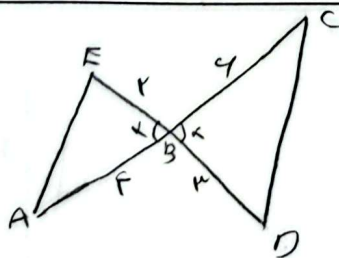
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$\frac{AB}{\sin C} = \frac{AC}{\sin B} \Rightarrow \frac{AB}{\sin 90^\circ} = \frac{AC}{\sin 60^\circ} = \frac{\sin 10^\circ}{\sin 10^\circ}$

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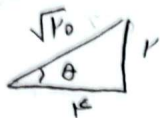
$\frac{S_{ABE}}{S_{CED}} = \frac{\frac{1}{2} \times 4 \times 3 \times \sin \alpha}{\frac{1}{2} \times 6 \times 5 \times \sin \alpha} = \frac{4}{9}$

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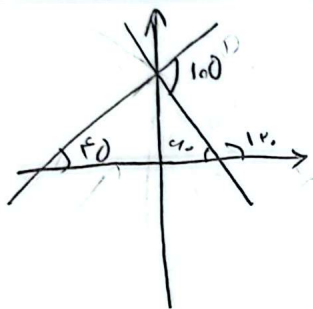
$$a) \sqrt{r_0} \times \sqrt{r_0} \times \frac{\sin 110^\circ}{\frac{\sqrt{r_0}}{r}} = \underline{4\sqrt{r_0}}$$

$$b) \frac{1}{r} \times \sqrt{r_0} \times \sqrt{r_0} \times \frac{\sin 110^\circ}{\frac{\sqrt{r_0}}{r}} = \underline{4\sqrt{r_0}}$$



$$\rightarrow \sqrt{r_0 + 14} = \sqrt{r_0}$$

$$\cos \theta = \frac{r}{\sqrt{r_0}} = \frac{r\sqrt{r_0}}{r_0} = \underline{\frac{\sqrt{r_0}}{\omega}}$$



$$y_1 = x_1 + r, 0$$

$$100 - 40 = 40$$

$$110 - 40 = 70$$

$$y_r = -\frac{\sqrt{r_0}}{r} x + r, 0 \Rightarrow m = -\frac{\sqrt{r_0}}{r} \quad b = r, 0$$

$$mb = \frac{-\sqrt{r_0}}{r} \times r, 0 = \underline{-1, r, 0\sqrt{r_0}}$$

$$f_m = -\cos m + \cos m + \cot m = \cot m$$

$$f\left(\frac{0\pi}{4}\right) = \cot\left(\frac{0\pi}{4}\right) = \frac{\frac{\sqrt{r_0}}{r}}{\frac{1}{r}} = \underline{-\sqrt{r_0}}$$

$$\frac{\cos x - \sin x}{-\cos x + \sin x} = \underline{-1}$$