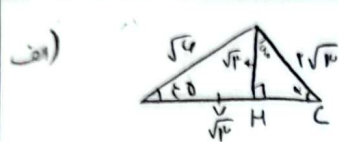


الف) $(\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2})(\frac{\sqrt{2}}{2} - \frac{\sqrt{2}}{2}) = (\frac{\sqrt{2}}{2})^2 - (\frac{\sqrt{2}}{2})^2 = \frac{2}{4} - \frac{2}{4} = -\frac{1}{2}$

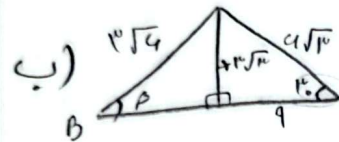
ب) $\frac{1 + 2(\frac{1}{\sqrt{2}})^2}{2(\frac{1}{\sqrt{2}})^2 + 2(\frac{1}{\sqrt{2}})^2} = \frac{1 + \frac{2}{2}}{2 + 2} = \frac{2}{4} = \frac{1}{2}$

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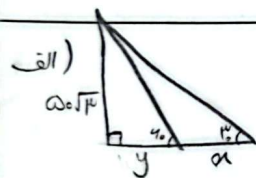
$\sin \alpha = \frac{\sqrt{3}}{2} = \frac{1}{2} \rightarrow \alpha = 30^\circ$

$\cos \alpha = \frac{1}{2} = \frac{MC}{2\sqrt{3}} \rightarrow MC = 1$

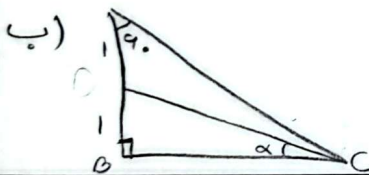


$\sin \beta = \frac{3\sqrt{4}}{10} = \frac{1}{2} = \frac{\sqrt{2}}{2} \rightarrow \beta = 45^\circ$

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$\frac{\omega\sqrt{3}}{y} = \sqrt{3} \rightarrow y = \omega$, $\frac{\omega\sqrt{3}}{\omega+y} = \frac{1}{\sqrt{3}} \rightarrow \omega+y = 10 \Rightarrow \omega = 10$

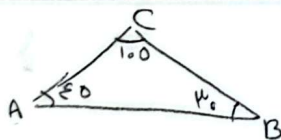


$\tan 45^\circ = \frac{1}{BC} \rightarrow BC = 1$

$\sin \alpha = \frac{1}{\sqrt{2}} = \frac{\sqrt{2}}{2}$

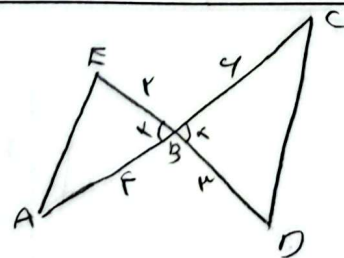
$\tan \alpha = \left(\frac{1\sqrt{2}}{DC}\right)^2 + \left(\frac{1}{DC}\right)^2 = 1 \rightarrow \frac{1}{DC^2} + \frac{1}{DC^2} = 1 \rightarrow \frac{1}{DC^2} = 1 \rightarrow DC = 1$

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$\frac{AB}{\sin C} = \frac{AC}{\sin B} \Rightarrow \frac{AB}{AC} = \frac{\sin C}{\sin B} = \frac{\sin 80^\circ}{\sin 60^\circ}$

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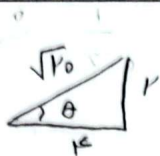


$\frac{S_{ABE}}{S_{CDE}} = \frac{\frac{1}{2} \times x \times z \times \sin \alpha}{\frac{1}{2} \times y \times w \times \sin \alpha} = \frac{x}{y}$

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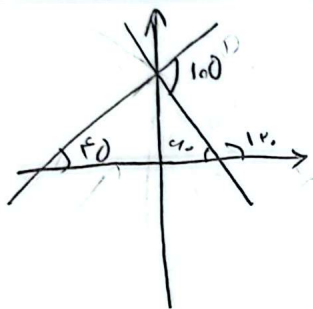
$$a) \sqrt{r} \times \sqrt{r} \times \frac{\sin 110^\circ}{\frac{\sqrt{r}}{r}} = \underline{4\sqrt{r}}$$

$$b) \frac{1}{r} \times \sqrt{r} \times \sqrt{r} \times \frac{\sin 110^\circ}{\frac{\sqrt{r}}{r}} = \underline{3\sqrt{r}}$$



$$\Rightarrow \sqrt{r+4} = \sqrt{r_0}$$

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



$$y_1 = x_1 + r, 0$$

$$100 - 40 = 40$$

$$110 - 40 = 70$$

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

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

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

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

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