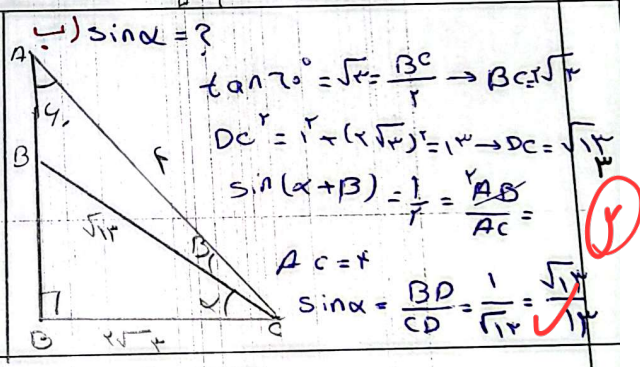
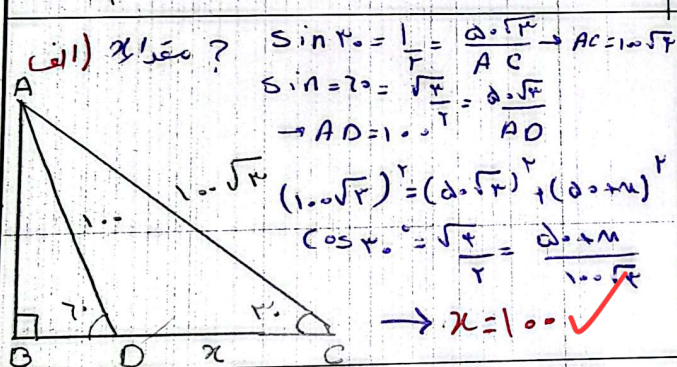
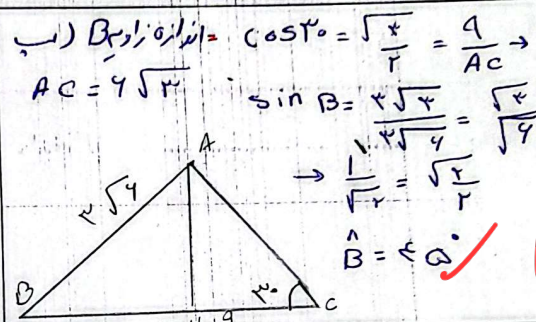
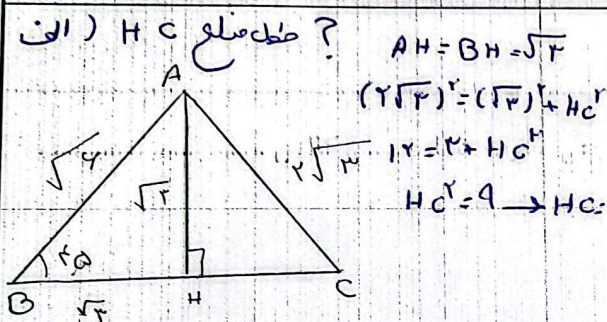


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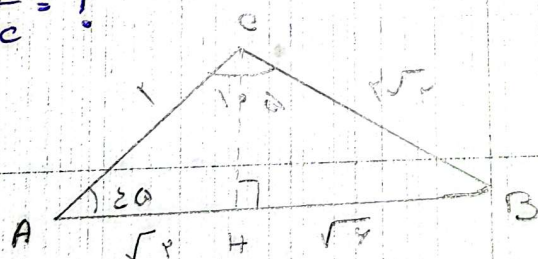
نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۳۰۰ کلاس: (۳۰۰)

الف) $(\sin 135^\circ + \sin 225^\circ)(\cos 135^\circ - \cos 225^\circ) = \left(\frac{\sqrt{2}}{2} + \left(-\frac{\sqrt{2}}{2}\right)\right)\left(\frac{\sqrt{2}}{2} - \left(-\frac{\sqrt{2}}{2}\right)\right)$
 $\frac{\sqrt{2}-\sqrt{2}}{2} \times \frac{\sqrt{2}+\sqrt{2}}{2} = \frac{2-2}{4} = -\frac{1}{4}$ ✓

ب) $\frac{1 + 2 \tan 22.5^\circ}{1 + 2 \tan 22.5^\circ} = \frac{1 + 1}{2 + 1} = \frac{2}{3} = \frac{1}{\frac{3}{2}}$ ✓
 $2 \times \left(\frac{\sqrt{2}}{2}\right) = 2 \times \left(\frac{\sqrt{2}}{2}\right) = 1$



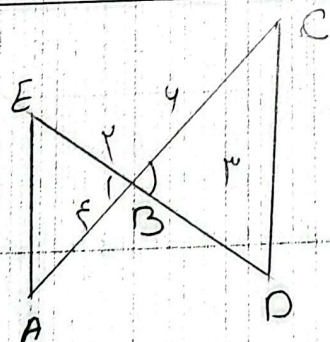
$\frac{AB}{AC} = ?$



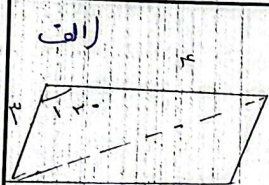
$AB = \sqrt{2} + \sqrt{2}$

$AC = 2$

$\frac{AB}{AC} = \frac{\sqrt{2} + \sqrt{2}}{2}$ ✓



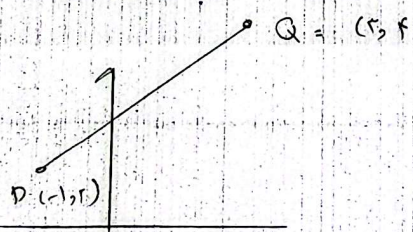
$\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times 2 \times 4 \times \sin B}{\frac{1}{2} \times 3 \times 4 \times \sin B} = \frac{4}{9}$ ✓



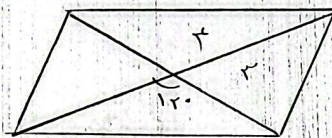
$$S = r \times \frac{1}{r} \times r \times r \sin \frac{\pi}{4} =$$

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

$$\cos \theta = ?$$



ب)

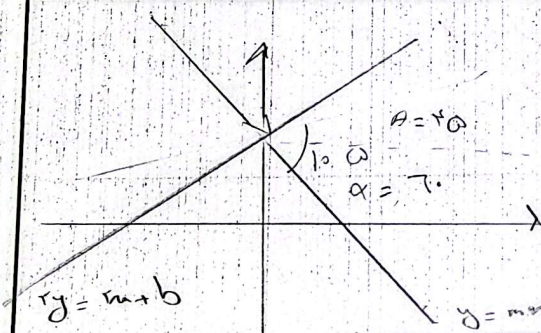


$$S = \frac{1}{2} ab \sin \alpha = \frac{1}{2} r \times r \times \frac{\sqrt{r}}{r} = r\sqrt{r}$$

$$\frac{y_2 - y_1}{x_2 - x_1} = \frac{r - 0}{r - 0} = \frac{r}{r} = 1$$

$$\tan A = 1$$

$$\cos A = \frac{1}{\sqrt{1 + \tan^2 A}} = \frac{1}{\sqrt{1 + 1}} = \frac{1}{\sqrt{2}}$$



$$\theta + \alpha = 180^\circ$$

$$y = mx + b \rightarrow y = x + r$$

$$\tan \theta = 1 \rightarrow \theta = 45^\circ \quad m = \sqrt{r}$$

$$180^\circ - 45^\circ = 135^\circ$$

$$\alpha = \beta \rightarrow \beta = 135^\circ \rightarrow \tan \beta = \tan 135^\circ = -\sqrt{r}$$

$$r = \sqrt{1 + (-\sqrt{r})^2} = \sqrt{1 + r} \quad mb = -\sqrt{r}$$

$$f(x) = \cos(\pi + x) + \sin(\frac{\pi}{2} - x) - \tan(\frac{3\pi}{4} + x)$$

$$f(\frac{5\pi}{4}) = ? \quad \cos(\pi + x) = -\cos x \quad \sin(\frac{\pi}{2} - x) = \cos x \quad \tan(\frac{3\pi}{4} + x) = -\cot x$$

$$\Rightarrow f(135^\circ) = \cos(135^\circ) + \sin(45^\circ) - \tan(225^\circ) = -\frac{\sqrt{2}}{2} + \frac{\sqrt{2}}{2} - (-1) = 1$$

$$\frac{\sin(\frac{11\pi}{4} + x) + \cos(\frac{13\pi}{4} - x)}{\cos(\frac{7\pi}{4} + x) - \sin(\frac{7\pi}{4} - x)} = \frac{\cos x + (-\sin x)}{-\cos x + \sin x}$$

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