

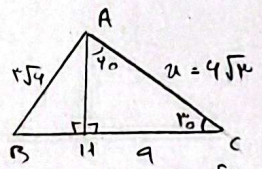
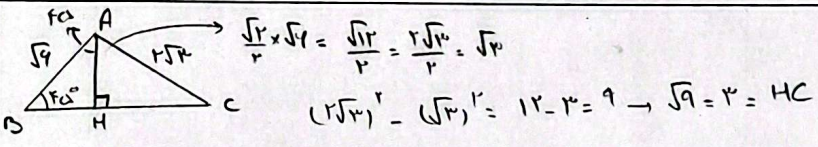
نام و نام خانوادگی: پانزدهم دبیرستان پاسخنمه تشریحی تکلیف شماره ۵۰۰ کلاس: (مجموعه پنجم و ششم)

الف) $(\sin 15^\circ + \sin 30^\circ)(\cos 15^\circ - \cos 15^\circ) = (\frac{\sqrt{2}}{2} - \frac{\sqrt{3}}{2})(\frac{\sqrt{2}}{2} + \frac{\sqrt{3}}{2}) = \frac{2}{4} - \frac{3}{4} = -\frac{1}{4}$

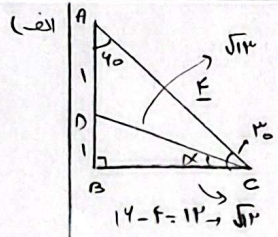
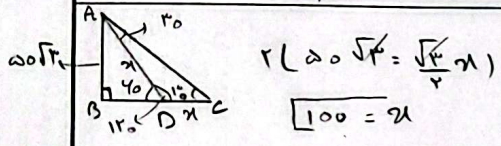
ب) $\frac{1 + \tan^2 110^\circ}{\cos^2 110^\circ + \cos^2 20^\circ} = \frac{1}{\cos^2 110^\circ} = \frac{1}{\cos^2 70^\circ} = \frac{1}{(\frac{\sqrt{3}}{2})^2} = \frac{4}{3}$

$(\frac{\sqrt{3}}{2})^2 \cdot \frac{4}{3} \times 3 = \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = \frac{3}{4} \times 2 = 1$

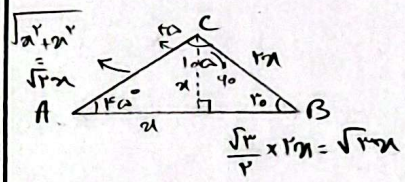
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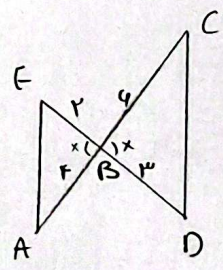


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الف) $\frac{AB}{AC} = \frac{2 + \sqrt{3} \times 2}{\sqrt{2} \times 2} = \frac{2(1 + \sqrt{3})}{\sqrt{2} \times 2} = \frac{1 + \sqrt{3}}{\sqrt{2}} \times \frac{\sqrt{2}}{\sqrt{2}} = \frac{\sqrt{2} + \sqrt{6}}{2}$

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الف) $\frac{S_{ABE}}{S_{BCD}} = \frac{\frac{1}{2} \times 4 \times 6 \times \sin 30^\circ}{\frac{1}{2} \times 4 \times 6 \times \sin 30^\circ} = \frac{1}{1} = \frac{4}{4}$

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$$S_{\text{شود}} = \frac{1}{r} \times r \times F \times \sin 120^\circ = 4 \times \frac{\sqrt{3}}{r} = 4\sqrt{3} \rightarrow S_{\text{شود}} = 4\sqrt{3} \times 2 = 8\sqrt{3}$$

(الف)

$$\frac{1}{r} \times r \times F \times \sin \frac{\sqrt{3}}{r} = 4\sqrt{3}$$

(ب)

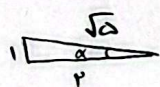
$$y = ax + b$$

$$F = ra + b \rightarrow (ra + b - F = 0) \rightarrow -ra - b + F = 0$$

$$r = -a + b \rightarrow -a + b - r = 0 \rightarrow \frac{-a + b - r = 0}{-ra + r = 0} \rightarrow -ra = -r \rightarrow a = \frac{1}{r}, b = \frac{a}{r}$$

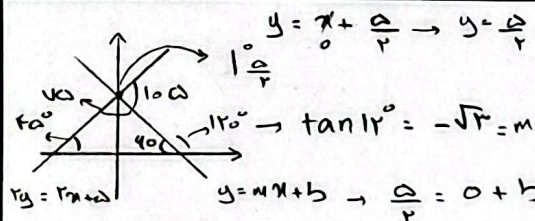
$$y = \frac{1}{r}x + b$$

$$\tan \theta = \frac{1}{r} = \frac{\text{دخا}}{\text{مجا}}$$



$$\cos = \frac{\text{مجا}}{\text{م}} = \frac{r}{\sqrt{a}} \times \frac{\sqrt{a}}{a} = \frac{r\sqrt{a}}{a}$$

✓



$$y = x + \frac{a}{r}$$

$$\tan \alpha = 1 \rightarrow \alpha = 45^\circ$$

$$\Rightarrow mb = -\sqrt{r} \times \frac{a}{r} = -\frac{a\sqrt{r}}{r}$$

✓

$$f(x) = \cos(\bar{a} + x) + \sin(\frac{\bar{a}}{r} - x) - \tan(\frac{r\bar{a}}{r} + x)$$

$$f(\frac{a\bar{a}}{r}) = \cos(\bar{a} + \frac{a\bar{a}}{r}) + \sin(\frac{\bar{a}}{r} - \frac{a\bar{a}}{r}) - \tan(r\bar{a} + \frac{a\bar{a}}{r})$$

$$-\cos x + \cos x + \cos x$$

$$\frac{\sqrt{r}}{r} - \frac{\sqrt{r}}{r} - \sqrt{r} = -\sqrt{r}$$

✓

$$\sin(\frac{10\bar{a}}{r} + x) + \cos(\frac{10\bar{a}}{r} - x)$$

$$\cos(r\bar{a} + x) - \sin(4\bar{a} - x)$$

$$(\frac{14\bar{a}}{r} + \frac{\bar{a}}{r} + x) = \sin(\frac{\bar{a}}{r} + x) = \cos x$$

$$(\frac{12\bar{a}}{r} + \frac{r\bar{a}}{r} - x) = \cos(\frac{r\bar{a}}{r} - x) = -\sin x$$

$$r\bar{a} + x = r\bar{a} + \bar{a} + x = \cos(\bar{a} + x) = -\cos x$$

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

$$4\bar{a} - x = \sin(r\bar{a} - x) = -\sin x$$

✓