

نام و نام خانوادگی هفتاد و سه سال پاسخنامه تشریحی تکلیف شماره ۱۸۰ کلاس دهم دبیرستان
 نام و نام خانوادگی هفتاد و سه سال پاسخنامه تشریحی تکلیف شماره ۱۸۰ کلاس دهم دبیرستان

الف - $\tan \frac{11\pi}{4} + \sin \frac{10\pi}{4} \cos \frac{13\pi}{4}$ ب - $\tan \frac{13\pi}{4} \sin \frac{11\pi}{4} + \cos \frac{10\pi}{4}$

$\Rightarrow \tan(\frac{7\pi}{4} + \frac{4\pi}{4}) + \sin(\frac{5\pi}{2} + \frac{\pi}{2}) \cos(\frac{3\pi}{2} + \frac{\pi}{4}) \Rightarrow \tan(\frac{7\pi}{4} + \frac{4\pi}{4}) \sin(\frac{5\pi}{2} + \frac{\pi}{2}) + \cos(\frac{7\pi}{4} + \frac{\pi}{4})$

$\frac{11\pi}{4} = 2\pi + \frac{3\pi}{4}$ $\frac{10\pi}{4} = 2\pi + \frac{2\pi}{4}$ $\frac{13\pi}{4} = 3\pi + \frac{1\pi}{4}$ $\frac{11\pi}{4} = 2\pi + \frac{3\pi}{4}$ $\frac{10\pi}{4} = 2\pi + \frac{2\pi}{4}$ $\frac{13\pi}{4} = 3\pi + \frac{1\pi}{4}$

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$-1 + \frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2} = -1 + \frac{2}{4} = -\frac{1}{2}$ $\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{2} - \frac{1}{2} = \frac{1}{2} - \frac{1}{2} = 0$

$\cot x = t \quad \frac{\cos x}{\sin x} = t \quad \cos x = t \sin x$

$\frac{4 \cos x - \sin x}{\cos x + \sin x} =$

$\frac{11 \sin x - \sin x}{t \sin x + \sin x} = \frac{11 \sin x}{\sin x (t + 1)} = \frac{11}{t + 1}$

$\sin \alpha = 2 \cos \alpha$

$\alpha \rightarrow 3$ $\cos, \sin \rightarrow -$

$\sin^2 \alpha + \cos^2 \alpha = 1$

$* \sin^2 \alpha = 4 \cos^2 \alpha$

$4 \cos^2 \alpha + \cos^2 \alpha = 1$

$5 \cos^2 \alpha = 1$

$\cos^2 \alpha = \frac{1}{5}$

$\cos \alpha = \frac{1}{\sqrt{5}}$

$\sin \alpha = \frac{2}{\sqrt{5}}$

$\cos(\frac{11\pi}{4} + \alpha) = \cos(\frac{11\pi}{4} + \frac{11\pi}{4} + \alpha) = \cos(\frac{13\pi}{2} + \alpha) = \cos(\frac{13\pi}{2} + \alpha)$

$\sin \alpha = \frac{2}{\sqrt{5}} \rightarrow \cos^2 \alpha + \sin^2 \alpha = 1 \rightarrow \cos^2 \alpha = 1 - \frac{4}{5} = \frac{1}{5} \rightarrow \cos \alpha = \frac{1}{\sqrt{5}}$

$\rightarrow \frac{2}{\sqrt{5}} (\frac{1}{\sqrt{5}} + \frac{2}{\sqrt{5}}) = \frac{2}{5} \times \frac{3}{\sqrt{5}} = \frac{6}{5\sqrt{5}} = \frac{6\sqrt{5}}{25}$

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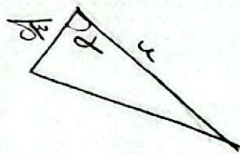
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$$S_{\Delta} = \frac{1}{2} absin\alpha$$

$$x/y = \frac{1}{x} \times \sqrt{xy} \times \frac{y}{x} \sin\alpha$$

$$x/y = \sqrt{xy} \sin\alpha$$

$$\sin\alpha = \frac{x/y}{\sqrt{xy}} = \frac{y}{\sqrt{xy} \times \sqrt{xy}} = \frac{\sqrt{xy}}{y \times y} = \frac{\sqrt{xy}}{y}$$

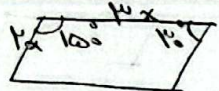
ابتدا یک مثلث فرض می‌کنیم:

حال می‌خواهیم بدانیم زاویه‌ها ۹۰ و ۱۲۰ و ۶۰

$$\frac{\pi}{3} \quad \frac{2\pi}{3}$$

$$\text{D. به حسب } \rightarrow \frac{\text{Max}}{\text{Min}} = \frac{120}{60} = 2$$

$$\text{R. به حسب } \rightarrow \frac{120}{60} = 2$$



$$S_{\square} = absin\alpha$$

$$\omega x = x \times x \times \frac{1}{2} \sin 120^\circ$$

$$\omega x = x^2$$

$$x^2 = 12$$

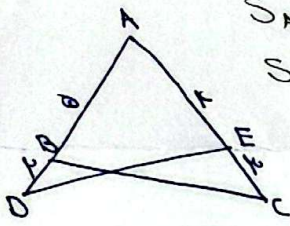
$$x = \sqrt{12} = 2\sqrt{3}$$

ابتدا یک مربع فرض می‌کنیم:

$$P_{\square} = x + x = 10x$$

$$= 10 \times 2\sqrt{3} = 20\sqrt{3}$$

$$\frac{-\frac{\omega x}{x} \times \frac{1}{2} \times \frac{1}{2}}{\frac{1}{2} \times \frac{1}{2}}$$



$$S_{ABC} = \frac{1}{2} \times \omega \times \sqrt{3} \times \sin A = \frac{\sqrt{3}\omega}{2} \sin A$$

$$S_{ADE} = \frac{1}{2} \times \sqrt{3} \times \frac{\omega}{2} \times \sin A = \frac{\sqrt{3}\omega}{4} \sin A$$

$$S_{ABC} - S_{ADE} = \frac{\sqrt{3}\omega}{2} \sin A - \frac{\sqrt{3}\omega}{4} \sin A = \frac{\sqrt{3}\omega}{4} \sin A$$

$$\frac{1}{2} \times \frac{\omega}{2} = \frac{\omega}{4}$$

$$\frac{\sqrt{3}\omega}{4} \sin A = \frac{\omega}{4}$$

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

$$\sin^2 A + \cos^2 A = 1$$

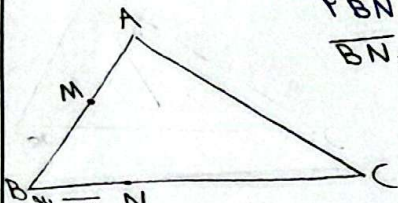
$$\frac{1}{3} + \cos^2 A = 1$$

$$\cos^2 A = \frac{2}{3}$$

$$\cos A = \frac{\sqrt{2}}{\sqrt{3}}$$

$$\tan A = \frac{\sin A}{\cos A} = \frac{\frac{1}{\sqrt{3}}}{\frac{\sqrt{2}}{\sqrt{3}}} = \frac{1}{\sqrt{2}}$$

$$\frac{1}{\sqrt{2}} = \frac{1 \times \sqrt{2}}{\sqrt{2} \times \sqrt{2}} = \frac{\sqrt{2}}{2}$$



$$\frac{1}{2} BN = \frac{1}{2} NC$$

$$\frac{1}{2} BN = \frac{1}{2} NC$$

$$S_{ABC} = \frac{1}{2} \times AB \times BC \times \sin B$$

$$S_{BMN} = \frac{1}{2} \times BM \times NC \times \sin B$$

$$\frac{1}{2} \times AB \times \frac{1}{2} NC \times \sin B = \frac{1}{2} \times BM \times \frac{1}{2} NC \times \sin B$$

$$\frac{BM}{AM} = \frac{BM}{AM} = \frac{1}{2}$$

$$\frac{AB}{BM} \times \frac{1}{2} \times \frac{1}{2} = \frac{1}{2}$$

$$\frac{AB}{BM} = 2 \times \frac{1}{2} = 1$$

$$AB = \frac{9}{2} BM$$

$$AM = AB - BM = \frac{9}{2} BM - BM = \frac{7}{2} BM$$

$$\frac{1}{\cos \alpha} - \tan \alpha = \frac{1 + \sin \alpha}{|\cos \alpha|}$$

$$\frac{|\sin \alpha|}{\cos \alpha} = \frac{-1}{\cot \alpha} = -\tan \alpha = \frac{-\sin \alpha}{\cos \alpha}$$

$$\sin \alpha < 0$$

$$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|}$$

$$-\frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{|\cos \alpha|} - \frac{1}{|\cos \alpha|}$$

$$-\frac{\sin \alpha}{\cos \alpha} = \frac{\sin \alpha}{|\cos \alpha|} \quad \cos \alpha < 0$$

پس می‌توانیم $\sin \alpha$ و $\cos \alpha$ را بدست آوریم.

ب - α جال $\rightarrow \sin, \cos$

$$\tan \alpha = \frac{1}{\sqrt{}}$$

$$* \sin(\alpha + \beta) = \sin \alpha \cos \beta + \sin \beta \cos \alpha$$

: $\frac{1}{\sqrt{}}$ مستقر

$$\sin\left(\frac{13\pi}{4} + \alpha\right) = \sin\left(\frac{1\pi}{4} + \frac{12\pi}{4} + \alpha\right) = \sin\left(\frac{\pi}{4} + \alpha\right) =$$

$$\sin \frac{\pi}{4} \times \cos \alpha + \sin \alpha \times \cos \frac{\pi}{4}$$

$$\tan^2 \alpha + 1 = \frac{1}{\cos^2 \alpha} \rightarrow \frac{1}{\frac{1}{49}} + 1 = \frac{1}{\cos^2 \alpha}$$

$$\cos^2 \alpha = \frac{49}{50} \rightarrow \text{جال} \rightarrow \cos \alpha = \frac{\sqrt{}}{50}$$

$$\sin^2 \alpha + \cos^2 \alpha = 1$$

$$\sin^2 \alpha = 1 - \frac{49}{50} = \frac{1}{50} = \frac{1}{50\sqrt{}}$$

$$\sin \frac{13\pi}{4} \times \cos \alpha + \sin \alpha \times \cos \frac{13\pi}{4} =$$

$$\frac{-\frac{1}{\sqrt{}}}{\sqrt{}} \times \frac{\sqrt{}}{50\sqrt{}} + \frac{1}{50\sqrt{}} \times \frac{-\frac{1}{\sqrt{}}}{\sqrt{}} =$$

$$\frac{-\frac{1}{\sqrt{}}}{\sqrt{}} \left(\frac{\sqrt{}}{50\sqrt{}} + \frac{1}{50\sqrt{}} \right) = \frac{-\frac{1}{\sqrt{}}}{\sqrt{}} \times \frac{1}{50\sqrt{}} = \frac{-1}{50}$$