$(2! \quad 3! \quad n!)$

B یازدهم ریاضی

پرهام منصوری

۲۵ آفرین!

۱) ② ناحیه اول ✓

$\cot\alpha = \frac{\cos\alpha}{|\sin|}$

$\frac{1}{|\cos x|} - \frac{\sin}{\cos} = \frac{1-\sin}{\cos}$

$\alpha \; < \; 1, \; 2$

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۲) ②

$\sin 2x = \frac{m-1}{4}$

$-\frac{\pi}{12} < x < \frac{5\pi}{12}$

$-\frac{1}{2} < \sin 2x \leq 1$

$-\frac{1}{2} < \frac{m-1}{4} \leq 1$

$m-1 \leq 4$

$m \leq 5$

$4 < 2-2m$

$2m < -2$

$m < -1$

$m = (-1 \quad 5]$ ✓

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۳) ②

$\tan x + \cot x = -3$

$\frac{3\pi}{4} < x < \pi$

$\frac{1}{\sin^3 x + \cos^3 x} = \frac{1}{(\sin x + \cos x)(\sin^2 x + \cos^2 x - \sin x \cos x)}$

$1 + \frac{1}{3}$

$\frac{1}{\sin\cos} = -3$

$\sin.\cos = -\frac{1}{3}$

$(\sin x + \cos x)^2 = \sin^2 x + \cos^2 x + 2\sin x.\cos x$

$1 \quad -\frac{2}{3}$

$\sin x + \cos x = \pm\frac{\sqrt{3}}{3}$

درست است زیرا مقدار cos بزرگتر است و منفی است

$\frac{1}{\left(\frac{-\sqrt{3}}{3} \times \frac{4}{3}\right)}$

$\frac{-9}{4\sqrt{3}} = -\frac{3\sqrt{3}}{4}$ ✓

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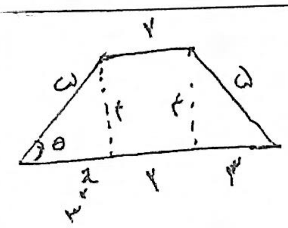
۴) ②



$\cos\theta = \frac{x}{5} = 0.6 \Rightarrow x = 3$

$9 + h^2 = 25$

$h = 4$

$S = \frac{(2+8)\times 4}{2} = 20$ ✓

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۵) ②

$\tan(285)\tan(-165) - \sin(1095)\cos(255) = K\cos^2(15)$

$\tan\left(\frac{3\pi}{2}+15\right).\tan(15-\pi) - \sin(15)\cos\left(\frac{3\pi}{2}-15\right)$

$-\cot(15) \, . \, \tan(15) + \sin(15)\times\sin(15)$

$-1 + \sin^2(15) = -\cos^2(15)$

$K = -1$ ✓

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۶) ②

$\sqrt{3}\cos(210)\times\sin\left(\frac{3\pi}{2}-27\right) - \sqrt{2}\sin(135)\cos(\pi-27)$

$+\frac{3}{2}\times\cos(27) + \cos(27) = ~~\cos(27) + \cos(27)~~$

$\frac{5}{2}\cos(27)$

~~$\frac{1}{2}\cos(27)$ / $\cos(27)$ = $-\frac{1}{2}$~~

$\frac{\frac{5}{2}\cos(27)}{\cos(27)} = \frac{5}{2}$ ✓

(۷

$f(x) = ۱۶\cos^۲(۲x).\cos^۲(۶x)\cos^۲(۱۲x)\cos^۲(۲۴x)$

$۸(۱+\cos(۶x).\cos^۲(۶x).\cos^۲(۱۲x).\cos^۲(۲۴x) = ۸(۱+\cos(\frac{\pi}{۶})).\cos^۲(\frac{\pi}{۶}).\cos^۲(\frac{\pi}{۳}).\cos^۲(\frac{۲\pi}{۳})$

۲

$\not{۸} \times \frac{۲+\sqrt{۳}}{\not{۲}} \times \frac{۳}{\not{۴}} \times \frac{۱}{۴} \times \frac{۱}{۴}$

$\frac{۶+۳\sqrt{۳}}{۱۶}$ ✓

(۸ ۲

$\frac{۱-\sin(x)}{۱+\sin(x)} = ۴$

$۴+۴\sin(x) = ۱-\sin(x)$

$۵\sin(x) = -۳$

$\sin(x) = -\frac{۳}{۵}$

$\sin^۲ + \cos^۲ = ۱$

$\frac{۹}{۲۵} + \frac{۱۶}{۲۵} = ۱$

$\tan(\frac{x}{۲}) = \frac{\sin(x)}{۱+\cos(x)} = \frac{-\frac{۳}{۵}}{\frac{۱}{۵}} = -۳$ ✓

$\cos(x) = -\frac{۴}{۵}$

(۹ ۲

$\frac{\sin(\theta)}{۱-\cos(\theta)} + \frac{۱+\cos(\theta)}{\sin(\theta)} = \frac{۲\sin(\frac{\theta}{۲})\cos(\frac{\theta}{۲})}{۲\sin^۲(\frac{\theta}{۲})} + \frac{۲\cos^۲(\frac{\theta}{۲})}{۲\sin(\frac{\theta}{۲})\cos(\frac{\theta}{۲})} = \frac{۲\cos(\frac{\theta}{۲})}{\sin(\frac{\theta}{۲})} = ۲\cot(\frac{\theta}{۲})$

$\Rightarrow K = ۲$ ✓

(۱۰ ۲

$\sin(\alpha) = \frac{\sqrt{۲}}{۱۰}$

$\sin^۲\alpha + \cos^۲\alpha = ۱$

$\frac{۱}{۵۰} + \frac{۴۹}{۵۰}$

$\frac{-۷}{۵\sqrt{۲}} = \frac{-۷\sqrt{۲}}{۱۰}$

$\cos(\frac{۱۱\pi}{۴}+\alpha) = \cos(\frac{۳\pi}{۴}+\alpha) = \cos(\frac{۳\pi}{۴})\times\cos(\alpha) - \sin(\frac{۳\pi}{۴}).\sin(\alpha)$

$-\frac{\sqrt{۲}}{۲} \times \frac{-۷\sqrt{۲}}{۱۰} - \frac{\sqrt{۲}}{۱۰} \times \frac{\sqrt{۲}}{۲}$

$\frac{۷}{۱۰} - \frac{۱}{۱۰} = \frac{۶}{۱۰}$ ✓