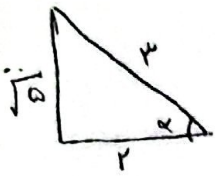
$\cos\alpha = \frac{2}{3}$,



$\cos\alpha = \frac{2}{3}$, $\tan\alpha = -\frac{\sqrt{5}}{2}$, $\sin\alpha = -\frac{\sqrt{5}}{3}$

$$\frac{\sin(\frac{\pi}{2}+\alpha) - \sin(\alpha-\pi)}{|\tan^2\alpha - 1|} = \frac{\cos\alpha + \sin}{|\tan^2\alpha - 1|}$$

$$\rightarrow \frac{\frac{2}{3} - \frac{\sqrt{5}}{3}}{|\frac{5}{4} - \frac{4}{4}|} = \frac{\frac{2-\sqrt{5}}{3}}{\frac{1}{4}} = \frac{8-4\sqrt{5}}{3}$$ ۶

$\sin\alpha = 2\cos\alpha$ $\alpha =$ در ربع سوم $\cos\alpha = -\frac{1}{\sqrt{5}}$

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

$$\cos\alpha = -\frac{1}{\sqrt{5}} \; ✓$$ (در ربع سوم) ۷

$$2mx + (m^2-1)y = 3 \rightarrow y = \frac{-2m}{m^2-1}x + \frac{3}{m^2-1}$$

$$\tan 60° = \sqrt{3} \rightarrow \frac{-2m}{m^2-1} = \sqrt{3} \rightarrow \sqrt{3}m^2 - \sqrt{3} = -2m \rightarrow \sqrt{3}m^2 + 2m - \sqrt{3} = 0 \quad \Delta = 16 \quad \frac{-2 \pm 4}{2\sqrt{3}} \begin{cases} m_1 = \frac{1}{\sqrt{3}} \\ m_2 = -\frac{3}{\sqrt{3}} \end{cases}$$ ۸

اختلاف m ها $= \frac{1}{\sqrt{3}} - \left(-\frac{3}{\sqrt{3}}\right) = \frac{4}{\sqrt{3}}$

$-\frac{\pi}{4} < x < \frac{\pi}{4}$ $\tan(\frac{\pi}{4} - x) = \frac{1-m}{2+m} \rightarrow \tan\alpha = \frac{1-m}{2+m}$

$$-1 < \tan x < 1 \rightarrow -1 < \frac{1-m}{2+m} < 1 \Rightarrow D = (-2, -\frac{1}{2})$$ ۹

$0 < \frac{2+m+1-m}{2+m} \rightarrow \frac{3}{2+m} > 0$ (−2: − | +)

$\frac{1-m-2-m}{2+m} < 0 \rightarrow \frac{-1-2m}{2+m} < 0 \rightarrow$ (−2, −½: − | + | −)

$$\tan(300°)\cos(210°) + \tan(480°)\sin(840°)$$

$$(-\sqrt{3}) \times \left(-\frac{\sqrt{3}}{2}\right) + (-\sqrt{3})\left(\frac{\sqrt{3}}{2}\right) = 0$$ ۱۰

$480 = 360 + 120$

$\tan(480) = \tan(120)$

$840 = (2 \times 360) + 120$

$\sin(840) = \sin(120)$

۹) $-\frac{\pi}{4} < x < \frac{\pi}{4} \longrightarrow 0 < x - \frac{\pi}{4} < \frac{\pi}{2}$

کمان در ربع اول است ← تانژانت + ← $\frac{1-m}{2+m} > 0 \rightarrow m \in (-2, 1)$

نام و نام خانوادگی: برنا مشهدیان کلاس شماره ی ۲۶ گروه دختر یازدهم A ۱۴,۵

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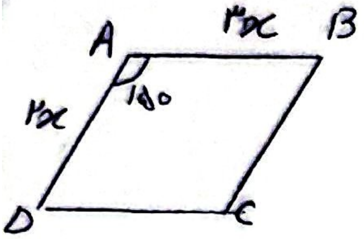
S متوازی الاضلاع : ۵۴



$S_{ABCD} = AB \times AD \times \sin 150 = 3x \times 2x \times \frac{1}{2} = 3x^2 = 54$ → $x = \sqrt{18}$

محیط $= 2(2x + 3x) = 10x \longrightarrow 10\sqrt{18}$

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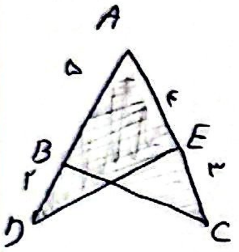
$S_{ABC} - S_{ADE} = 1.75$ $\tan\hat{A} =$

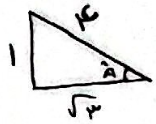


$S_{ABC} = 5 \times (4+3) \times \sin\hat{A} = 35\sin\hat{A}$

$S_{ADE} = 4 \times (5+2) \times \sin\hat{A} = 28\sin\hat{A}$

$\longrightarrow 35\sin\hat{A} - 28\sin\hat{A} = 7\sin\hat{A}$ ①

① $\Rightarrow 7\sin\hat{A} = 1.75 \rightarrow \sin\hat{A} = \frac{1}{4}$



$\Rightarrow \tan\hat{A} = \frac{1}{\sqrt{3}}$

۲

۳

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

$\cos > 0 \Rightarrow \frac{1 - \sin\alpha}{\cos\alpha} \neq \frac{1+\sin\alpha}{|\cos\alpha|}$

$\cos < 0 \Rightarrow \frac{-1+\sin\alpha}{\cos\alpha} = \frac{1+\sin\alpha}{-\cos} \Rightarrow \cos < 0$ ①

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

$\sin > 0 \rightarrow \frac{\sin}{\cos} = \tan x$

$\sin < 0 \rightarrow \frac{-\sin}{\cos} = -\tan$

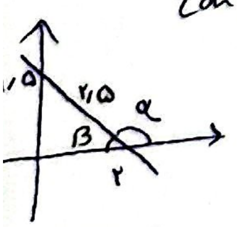
$\rightarrow \sin < 0$ ②

①,② ⇐ α در ناحیه سوم است

۲

۴

$\tan(\frac{\pi}{2} - \alpha) = \cot\alpha$



$\hat{\alpha} + \hat{\beta} = 180 \Rightarrow \sin\hat{\beta} = \sin\hat{\alpha} \rightarrow \frac{1.5}{2.5} = \frac{3}{5}$ ①

$\Rightarrow \cos\beta = -\cos\alpha \rightarrow \frac{-2}{2.5} = -\frac{4}{5}$ ②

★ زاویه های مکمل: $\sin\alpha = \sin\beta$ ، $\cos\alpha = -\cos\beta$

①,② $\Rightarrow \cot\alpha = \frac{-\frac{4}{5}}{\frac{3}{5}} = -\frac{4}{3}$

۲

۵

$\frac{3\cos(248^\circ) - 2\sin(158^\circ)}{\sin(202^\circ) - \cos(292^\circ)} = \frac{3\cos(360 - 112) - 2\sin(270 - 112)}{\sin(90 + 112) - \cos(180 + 112)} = \frac{3\cos(112) - 2\cos(112)}{\cos(-112) - (-\cos(112))}$

$= \frac{3\cos(112) - 2\cos(112)}{\cos(112) + \cos(112)} = \frac{\cos(112)}{2\cos(112)} = \frac{1}{2}$

۰

$\frac{-\sin 32^\circ - 2\sin 22^\circ}{-\sin 22^\circ - \sin 22^\circ} = 2.5$