پرهام ستاری

-۷
$\frac{1-\cos x}{1+\cos x}=2 \to 1-\cos x = 2+2\cos x \to 3\cos x=-1 \to \cos x=-\frac{1}{3}$

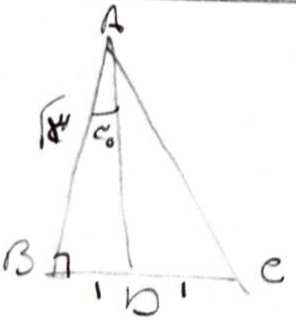
$\sin^2 x+\cos^2 x=1 \to \sin^2 x=\frac{8}{9} \to \sin x=\frac{2\sqrt{2}}{3}$ $\qquad \frac{\cot x+\cot x}{\tan x-2\sin x}=\frac{2\cot x}{-\tan x}$

$\tan x=-2\sqrt{2} \to \cot x=\frac{1}{-2\sqrt{2}} \to -\frac{1}{4}$ ✓

(۲)

-۸
$\frac{108}{15}=\frac{36}{5}$ $\qquad \frac{36}{5}-rB \to rA=\frac{3}{2}rB$ $\qquad \frac{S_A}{S_B}=\frac{\frac{9}{4}r_B^2}{r_B^2}=\frac{9}{4}$ ✓

لطفا ۴ها را مثل ۶ ننویس :)

-۹


$\sin 30=\frac{1}{2} \to \frac{BD}{AD}=\frac{1}{2} \to AD=2$

$B=90 \to AB^2=BD^2+AD^2 \to AB^2=3 \to AB=\sqrt{3}$ (-۰/۵) ✓

(۲)

$S_{ABC}=\frac{1}{2}AB\times BC\times\sin 90=\sqrt{3} \to a=2,\ \frac{\sqrt{3}}{2}a=\sqrt{3} \to a=2 \to AC=\sqrt{7}$ ✓

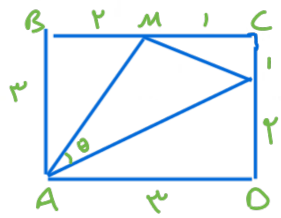
$\sin 2a=2\cos a\sin a \to 2\times\frac{2}{\sqrt{7}}\times\frac{\sqrt{3}}{\sqrt{7}}=\frac{4\sqrt{3}}{7}$

-۱۰
$MN=\sqrt{101}$ $\quad AN=\sqrt{104}$ $\quad AM=\sqrt{99}$

(۰/۵)

$AN=AM \to AM^2=(AB^2)+(BM)^2=2^2+3^2=13 \to AM=\sqrt{13}$

$S_{ADN}=S_{ABM}=\frac{2\times 3}{2}=3$ و $S_{MCN}=\frac{1\times 1}{2}$



$S_{ADN}+S_{ABM}+S_{MCN}+S_{AMN}=S_{ABCD} \to$
$\quad 3 \qquad\quad 3 \qquad\quad \frac{1}{2} \qquad\qquad\qquad 9$

S_{AMN} = ۲/۵

$\frac{1}{2}\times\sqrt{13}\times\sqrt{13}\times\sin\theta=\frac{5}{2}$

$\sin\theta=\frac{5}{13}$