دلیل برای ۱۷/۷۵

۱-

الف) $27 \times \frac{\pi}{180} = \frac{27\pi}{180} = \frac{9\pi}{60} = \frac{3\pi}{20}$

ب) $120 \times \frac{\pi}{180} = \frac{2\pi}{3}$ (؟)

ج) $\frac{5\pi}{12} \times \frac{180}{\pi} = 75^\circ$ ۲ ✓

د) $\frac{4\pi}{9} \times \frac{180}{\pi} = 80^\circ$

۲-

$$\frac{\frac{1209}{9}}{\frac{200}{1}} = \frac{D}{180} \Rightarrow D = \frac{\frac{1209}{9} \times 180}{200} = \frac{1209}{10} = 120.9$$

۲ ✓

$\frac{9\pi}{8} \times \frac{180}{\pi} = 22.5$ $\quad 12.5 + 22.5 + \alpha = 180^\circ$

$45 + \alpha = 180 \Rightarrow \alpha = 135$

۳-

الف) $\left(\frac{1}{2} \times \frac{\sqrt{2}}{2}\right) - \left(\frac{\sqrt{2}}{2} \times \frac{1}{2}\right) - (1+2) = \alpha - 1$

۱/۷۵

ب) $\frac{\frac{1}{2} + 1 + 2}{\frac{\sqrt{3}}{1} + \frac{1}{\sqrt{3}}} = \frac{13}{2\sqrt{2}}$ ✓

۴-

$\left(-\frac{1}{2} \times \frac{1}{2}\right) + \left(\frac{\sqrt{2}}{2} \times \frac{\sqrt{2}}{2}\right) = \sin^2\theta \Rightarrow \sin^2\theta = \frac{1}{4} \to \sin\theta = \pm\frac{\sqrt{2}}{2}$

$\sin\theta > 0 \to \frac{\sqrt{2}}{2} \to \theta = 45^\circ$

~~$\sin\theta = \frac{1}{2}, \theta < 90 \Rightarrow \theta = 30^\circ$~~ $\tan 45^\circ = 1$ ✓ ۰/۷۵

~~$\tan 30^\circ = \frac{1}{\sqrt{3}} = \frac{\sqrt{3}}{3}$~~

۵-

$$\frac{2\tan 30^\circ(1-\tan^2 30^\circ)}{(1-\cot^2 60^\circ)^2} = \frac{2\tan 30}{(1-\cot^2 60)} = \frac{2 \times \frac{1}{\sqrt{3}}}{1-\frac{1}{3}} = \sqrt{3}$$

$\Rightarrow \tan\theta = \sqrt{3} \Rightarrow \tan\theta = \sqrt{3}, \theta < 90$ ✓ ۱/۷۵

سوال برحسب رادیان خواسته $\theta = 60^\circ = \frac{\pi}{3}$

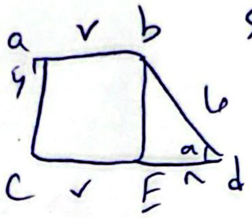
$\sin = \tan \times \cos$

-۶

$\frac{2\sin\theta - \cos\theta}{\sin\theta - 4\cos\theta} = \frac{2\times\tan\theta\times\cos\theta - \cos\theta}{\tan x\cos - 4\cos} = ۱۴$

(۲) ✓

-۷



$\sin a = \frac{4}{6}$

زاویه = ۴/۶

bd = ۱۰

$Ed^2 = 10^2 - 4^2 = Ed \Rightarrow Ed = 8$

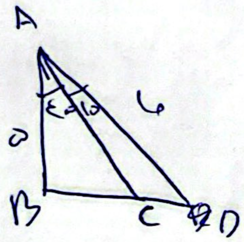
(۲) ✓

محیط ← ۳۸

-۸

$BD \Rightarrow \sin 60 = \frac{\sqrt{3}}{2} \Rightarrow \frac{BD}{AD} = \frac{\sqrt{3}}{2} \Rightarrow \frac{BD}{10} = \frac{\sqrt{3}}{2}$

$\Rightarrow BD = 5\sqrt{3}$ $\{ AB \Rightarrow \cos 60° = \frac{1}{2} \Rightarrow \frac{AB}{10} = \frac{1}{2}$



$BC \Rightarrow \tan 45 = 1 \Rightarrow BC = AB$, $BC = 5$

(۲) ✓ $DC = BD - BC = 5\sqrt{3} - 5$

-۹

الف) $\cos \uparrow$ ⇒ ناحیه ۱و۴ , $\sin \uparrow$ ⇒ ناحیه ۴

ب) $\sin \downarrow$ ۲,۳ , $\cos \downarrow$ ناحیه ۳و۴

(۲) ✓

-۱۰

$\tan x = \frac{1}{3} \Rightarrow \frac{\sin}{\cos} = \frac{1}{3} \Rightarrow \cos = 3\sin$

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

$\sin^2 + (3\sin^2) = 1$

$10\sin^2 = 1 \Rightarrow \sin^2 = \frac{1}{10} \Rightarrow \sin = \frac{\sqrt{10}}{10}$

x در ناحیه سوم است
پس sinθ منفی است.

✓ (۱/۵)