

فرمول کلی: $\frac{D}{180} = \frac{Rad}{\pi} = \frac{G}{200}$

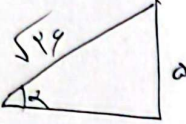
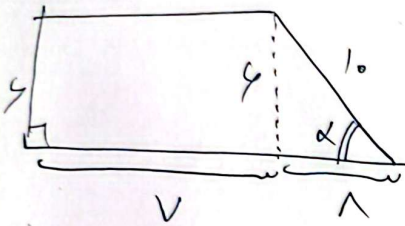
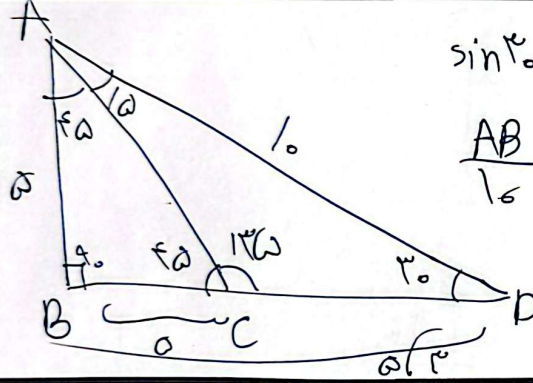
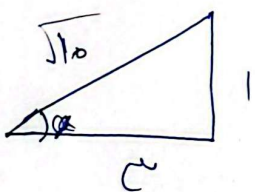
۱) $\gamma = 75^\circ$ ب) $\frac{25\pi}{36}$ الف) $\frac{3\pi}{20}$
 د) 180°

۲) $\frac{G}{200} = \frac{D}{180} = \frac{rad}{\pi}$ $\frac{125a}{9} = \frac{D}{180} \rightarrow D = 12,5a$
 $\frac{a\pi}{180} = \frac{D}{180} \rightarrow D = 22,5$ $\rightarrow 10a + 22,5a + 12,5a = 180$
 $45a = 180 \quad a = 4$

۳) الف) $(\frac{1}{4} \times \frac{\sqrt{3}}{2}) - (\frac{\sqrt{3}}{4} \times \frac{1}{2}) = 1 + 2 = 1$ ①
 ب) $= \frac{\frac{1}{4} + 1 + 2}{\frac{\sqrt{3}}{2} - \frac{\sqrt{3}}{2}} = \frac{13}{2\sqrt{3}} \times \frac{\sqrt{3}}{\sqrt{3}} = \frac{13\sqrt{3}}{6}$

۴) $\frac{1}{4} \times \frac{1}{2} + \frac{\sqrt{3}}{2} \times \frac{\sqrt{3}}{2} = \frac{1}{4} + \frac{3}{4} = 1 = \sin^2 \theta$
 $\sin \theta = \frac{\sqrt{2}}{2}$ $\cos^2 \theta = 1 - \frac{1}{4} = \frac{3}{4} \rightarrow \cos \theta = \frac{\sqrt{3}}{2}$
 $\tan \theta = 1$

۵) $\frac{2 \times \frac{\sqrt{3}}{4} \times \frac{2}{3}}{\frac{4}{9}} \rightarrow 1 - (\frac{1}{\sqrt{3}})^2 = \frac{2}{3}$
 $\rightarrow (1 - (\frac{\sqrt{3}}{3})^2)^2 = (1 - \frac{1}{3})^2 = (\frac{2}{3})^2 = \frac{4}{9}$
 $\tan \theta = \sqrt{3} \quad \theta = 60^\circ$ $\frac{40}{180} = \frac{Rad}{\pi} \quad Rad = \frac{\pi}{3}$

$\tan \alpha = a$  $\sin \alpha = \frac{a}{\sqrt{1+a^2}}$ $\cos \alpha = \frac{1}{\sqrt{1+a^2}}$ بابت $\frac{1-a}{\sqrt{1+a^2}} \div \frac{a-1}{\sqrt{1+a^2}} = \frac{1-a}{a-1} = \frac{1}{-1} = -1$	6
 $\sin \alpha = \frac{4}{10}$ $\text{مسافة} = \sqrt{v^2 + 4^2} + 10 = 38$	7
 $\sin 30^\circ = \frac{1}{2}$ $\tan 45^\circ = 1$ $\frac{a}{BC} = 1$ $\frac{AB}{10} = \frac{1}{2}$ $AB = 5$ $BC = a$ $\cos 30^\circ = \frac{\sqrt{3}}{2}$ $\frac{BD}{10} = \frac{\sqrt{3}}{2}$ $CD = 5\sqrt{3} - 5$	8
الف) سوم ب) دوم	9
 $\sin \alpha < 0$ ← ناقصیوم $\sin \alpha = -\frac{1}{10} \times \frac{\sqrt{10}}{\sqrt{10}} = \frac{-\sqrt{10}}{10}$	10