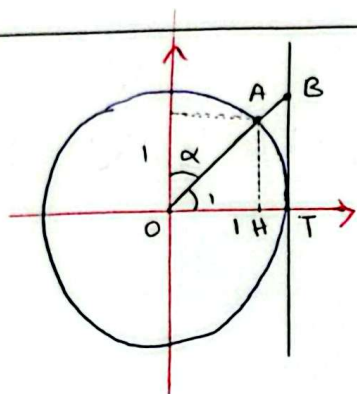
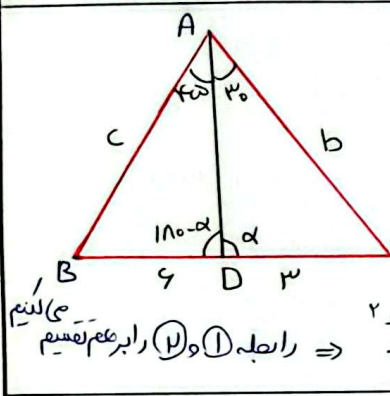


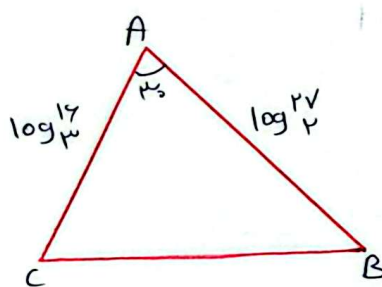
نام و نام خانوادگی مریم محمدی پاسخنانه تشریحی تکلیف شماره ۱۴۰۱ کلاس (دوره دوم ریاضی)



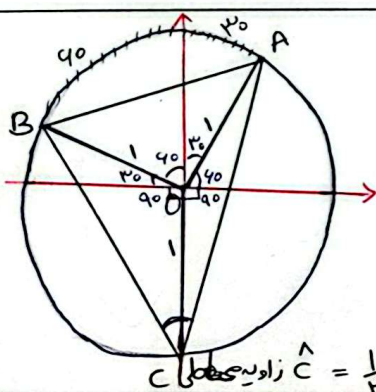
$$\begin{aligned} \hat{O}_1 + \hat{\alpha} &= 90^\circ \rightarrow \tan \hat{O}_1 = \cot \hat{\alpha} \rightarrow \cos \hat{\alpha} = \sin \hat{O}_1 \\ \downarrow \\ \frac{BT}{1} &= \cot \hat{\alpha} \quad \sin \hat{O}_1 = \frac{AH}{1} = \cos \hat{\alpha} \\ \text{قضیه تالس} \quad \Delta OBT &= \frac{OA}{OB} = \frac{AH}{BT} = \frac{\cos \hat{\alpha}}{\cot \hat{\alpha}} = \frac{1}{1+AB} \\ \sin \alpha &= \frac{1}{1+AB} \rightarrow 1+AB = \frac{1}{\sin \alpha} \rightarrow AB = \frac{1}{\sin \alpha} - 1 = \frac{1-\sin \alpha}{1} \end{aligned}$$



$$\begin{aligned} \sin(110-\alpha) &= \sin \alpha \quad (\text{دوایه مکمل سینهای برابر دارند}) \\ \Delta ABD &= \frac{BD}{\sin \alpha} = \frac{AB}{\sin(110-\alpha)} = \frac{4}{\frac{\sqrt{2}}{2}} = \frac{AB}{\sin \alpha} \quad (1) \\ \Delta ADC &= \frac{DC}{\sin \alpha} = \frac{AC}{\sin \alpha} \rightarrow \frac{3}{\frac{1}{2}} = \frac{AC}{\sin \alpha} \quad (2) \\ \text{رابطه (1) و (2)} &\Rightarrow \frac{4}{\frac{\sqrt{2}}{2}} = \frac{AB}{AC} \rightarrow \frac{AB}{AC} = \sqrt{2} \end{aligned}$$



$$\begin{aligned} AB &= \log_{\frac{1}{2}} \frac{1}{2} \\ AC &= \log_{\frac{1}{2}} \frac{1}{2} \\ S_{ABC} &= \frac{1}{2} AC \times AB \times \sin \alpha \\ S_{ABC} &= \frac{1}{2} \times \frac{\log_{\frac{1}{2}} \frac{1}{2}}{\log_{\frac{1}{2}} \frac{1}{2}} \times \frac{\log_{\frac{1}{2}} \frac{1}{2}}{\log_{\frac{1}{2}} \frac{1}{2}} \times \frac{1}{2} = \frac{1}{2} \times 1 \times 1 \times \frac{1}{2} = \frac{1}{4} \end{aligned}$$



$$\begin{aligned} AB^2 &= 1+1 \rightarrow AB = \sqrt{2} \\ BC^2 &= 1+1 - 2 \times 1 \times 1 \times \cos 110^\circ = 3 \rightarrow BC = \sqrt{3} \\ AC^2 &= 1+1 - 2 \times 1 \times 1 \times \cos 40^\circ = 2+\sqrt{3} \rightarrow AC = \sqrt{2+\sqrt{3}} \\ S_{ABC} &= \frac{BC \times AC \times \sin \alpha}{2} = \frac{\sqrt{3} \times \sqrt{2+\sqrt{3}} \times \sqrt{2}}{2} = \frac{\sqrt{6} \times \sqrt{2+\sqrt{3}}}{2} \\ &= \frac{\sqrt{12+6\sqrt{3}}}{2} \end{aligned}$$

$$2 \sin^2 \alpha - \cos^2 \alpha = \sin^2(\alpha) (2 \sin^2 \alpha - 1)$$

کام است $m = \cos \alpha$ را در عبارت قرار دهیم

$$\begin{aligned} 2 \cos^2 \alpha - \cos^2 \alpha - \sin^2 \alpha (2 \sin^2 \alpha - 1) &= 1 \cos \alpha \\ \cos^2 \alpha (2 \cos^2 \alpha - 1) &= 1 \cos \alpha \\ \cos^2 \alpha &= 1 \end{aligned}$$

$$\begin{aligned} \sin^2 \alpha &= \frac{1 - \cos^2 \alpha}{2} \\ \cos^2 \alpha (\cos^2 \alpha + \sin^2 \alpha) &= 1 \\ \cos^2 \alpha &= 1 \\ \sin^2 \alpha &= 0 \end{aligned}$$

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

$$\sin^2 \alpha = 0$$

سوال ۶ قسمت ب

