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$\frac{1}{4} \leq \frac{m}{4} \Rightarrow Z_n = \left(-\frac{1}{4}, 1\right] \Rightarrow -\frac{1}{4} < \frac{m}{4} \leq 1 \Rightarrow -1 < m \leq 4$

$\Rightarrow m = \left(-\frac{1}{4}, 1\right] \Rightarrow$ ۲ ✓

$\frac{\cos 10^\circ + -k \sin 10^\circ}{- \cos 10^\circ} = \frac{1 - 0.1736k}{-1 - 0.1736} = 2 \Rightarrow -4.8 = 1 - 0.1736k \Rightarrow$

$0.1736k = 5.8 \Rightarrow k = 33.4$ ✓ ۲

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

$\sin \theta = \sqrt{1 - \left(-\frac{1}{3}\right)^2} = \frac{\sqrt{8}}{3}$ ۲

$\frac{\cot \theta - (-\cot \theta)}{\tan \theta + 1(-\tan \theta)} = \frac{\cot \theta}{\tan \theta} = -1 \frac{\cos \theta}{\sin \theta} = -\frac{1/3}{\sqrt{8}/3} = -\frac{1}{\sqrt{8}}$ ۲

$\frac{1}{R_1} = \frac{1}{R_2} \Rightarrow R_1 = 2R_2$
 $\frac{9\pi}{1} \cdot R_A = \frac{9\pi}{1} \cdot R_B \Rightarrow \frac{R_A}{R_B} = \frac{1}{2} \Rightarrow \frac{S_A}{S_B} = \left(\frac{1}{2}\right)^2 = \frac{1}{4}$ ✓ ۲

etc: $\sqrt{2} \Rightarrow AB = 1 \cdot \sqrt{2} = \sqrt{2}$
 $S_{ADC} = \frac{1}{2} \cdot \sqrt{2} \cdot BC \Rightarrow DC = 1$
 $AC = \sqrt{2} + \sqrt{2} = 2 \Rightarrow \sin C = \frac{\sqrt{2}}{2} / \cos C = \frac{\sqrt{2}}{2}$
 $\sin C = \frac{\sqrt{2}}{2} \Rightarrow \frac{\sqrt{2}}{2} \cdot \frac{\sqrt{2}}{2} = \frac{1}{2}$ ✓ ۲

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21 April 2024
S u n d a yیکشنبه ۱۴۴۵ شوال ۱۲
اردیبهشت

۱۴۰۳/۲/۲

$$MN = \sqrt{2} \quad |AM = \sqrt{13} \quad |AN = \sqrt{13} \quad \text{منابع}$$

$$MN^2 = AN^2 + AM^2 - 2AM \cdot AN \cdot \cos \theta = 2 + 13 - 2 \cdot 13 \cos \theta$$

$$2 = 2 + 13 - 26 \cos \theta \Rightarrow \cos \theta = \frac{13}{26} = \frac{1}{2} \Rightarrow \theta = \frac{\pi}{3}$$

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