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$$a \sin \frac{x+y}{r} + b \cos \frac{x+y}{r} = \tan \frac{x+y}{r}$$

$$a \sin \frac{x+y}{r} + b \cos \frac{x+y}{r} = \tan \frac{x+y}{r}$$

$$\rightarrow \tan \frac{x+y}{r}$$

$$a \left(\frac{1}{r} \right) + b \left(\frac{1}{r} \right) = \frac{1}{r}$$

$$a \left(\frac{\sqrt{r}}{r} \right) + b \left(\frac{\sqrt{r}}{r} \right)$$

$$\sqrt{r} \left(a \frac{\sqrt{r}}{r} \right) - \sqrt{r} \left(b \frac{\sqrt{r}}{r} \right) = \frac{a}{r} - \frac{b}{r}$$

$$\frac{\sqrt{r}a - \sqrt{r}b}{r} = \frac{a-b}{r}$$

$$\Rightarrow \sqrt{r}a = \sqrt{r}b \Rightarrow a = b = \frac{b}{a} \dots$$

AVANGE

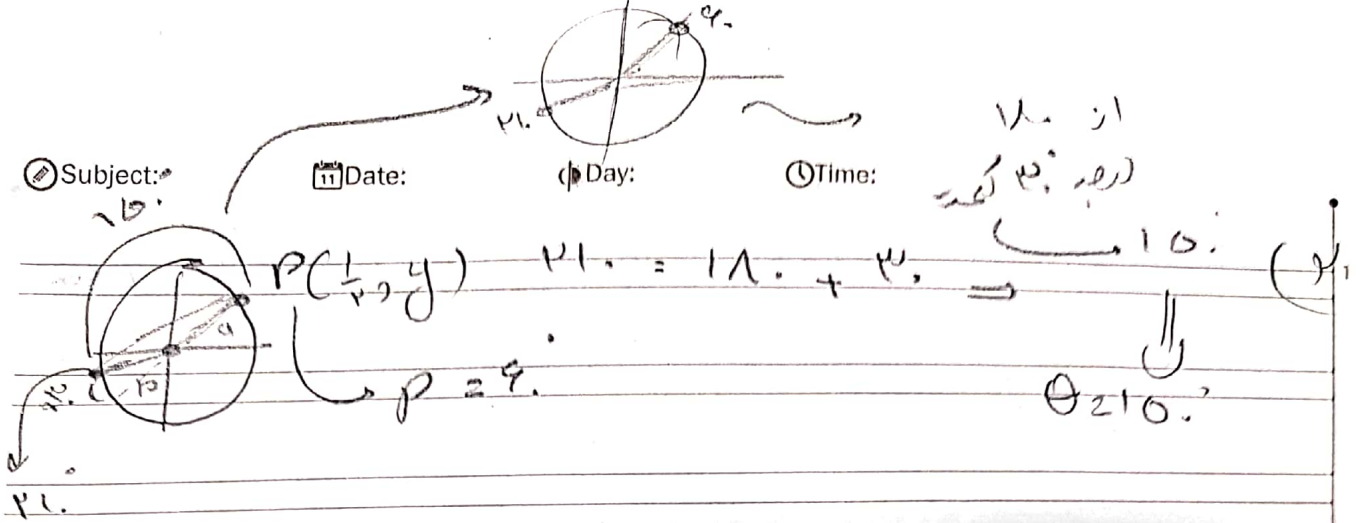
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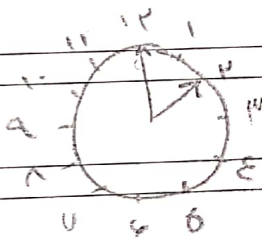


$$S = \frac{1}{r} a b \sin \theta$$

$$\frac{1}{r} (1)(1) \sin(10^\circ) =$$

$$\Rightarrow \frac{1}{r} \left(\frac{\sqrt{r}}{r} \right) = \frac{\sqrt{r}}{r^2}$$

$$\frac{\sqrt{r}}{r} = \left| 1 - \frac{\sqrt{r}}{r} \right| \Leftarrow \text{Solve}$$



$$r_1 = 0.6 \times 10$$

$$\frac{9r}{4} \approx \frac{9r}{4} = \frac{r_1 r}{1r}$$

$$\frac{9r}{4} = \frac{r_1 r}{6r}$$

$$\frac{9r}{4} = \frac{4r_1}{6r}$$

$$\frac{r}{4} \approx \frac{4r_1}{6r} = \frac{r_1}{6r}$$

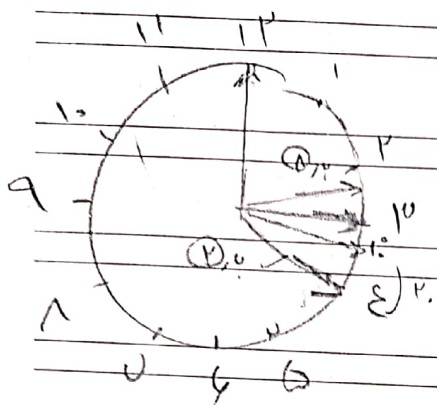
$$r: r \approx 6r$$

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$$11r \cos \theta = r$$

$$r = \left| \frac{11r}{\cos \theta} - r \right|$$

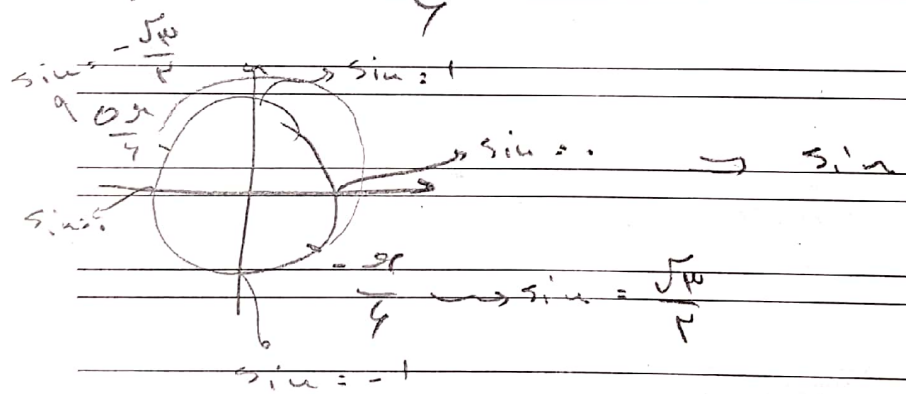
$$11r = \frac{11r}{\cos \theta}$$

$$\Rightarrow 11r \cos \theta = r \Rightarrow \cos \theta = \frac{1}{11}$$

←

$$\sin \theta = \frac{10r}{11r}$$

$$-\frac{10}{11} < \cos \theta < \frac{10}{11}$$



$$-\frac{10}{11} < \cos \theta < \frac{10}{11}$$

$$-\frac{10}{11} < \frac{11r}{11r} < \frac{10}{11}$$

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$$\Rightarrow -\frac{10}{11} < \cos \theta < \frac{10}{11}$$

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$$\sin(10^\circ) + K \cos(100^\circ) = 10$$

$$\cos(140^\circ) + K \sin(140^\circ)$$

$$\cos 10^\circ = 0.9848 \quad \sin 10^\circ = 0.1736$$

$$\Rightarrow \cos 10^\circ - K \sin 10^\circ = 10$$

$$-\cos 10^\circ - K \sin 10^\circ$$

$$-1.0 \quad -0.1736$$

$$\frac{\sin 10^\circ}{\cos 10^\circ} = \frac{10}{1.0}$$

$$\Rightarrow \frac{1.0 - 10K}{-10} = 10$$

$$1.0 - 10K = -100$$

$$-10K = -101$$

$$\Rightarrow K = \frac{101}{10} = 10.1$$

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$$r \cos u \rightarrow \sin u + \cos u$$

(V)

$$1 - \cos u = r + r \cos u$$

$$\Rightarrow r \cos u = -1 \Rightarrow \cos u = -\frac{1}{r}$$

$$\Rightarrow \sin u = \left(\frac{1}{r}\right) \Rightarrow \sin u = 1$$

$$\Rightarrow \sin u = \frac{1}{r} = \frac{1}{\sqrt{10}}$$

$$\cot u$$

$$+ \cot u$$

$$\tan\left(\frac{\pi}{2} - u\right) = \cot(u - \frac{\pi}{2})$$

$$\cot\left(\frac{\pi}{2} - u\right) + r \tan(\pi - u)$$

$$\tan u - r \tan u$$

$$\Rightarrow \frac{r \cot u}{- \tan u} = \left(\frac{r \cos u}{\sin u} \right) = \frac{r \cos u}{- \sin u} = \frac{r \cos u}{- \sin u}$$

$$\frac{r}{a} = \frac{r(-\frac{1}{r})}{r}$$

$$= \frac{-1}{a} = \frac{-(\frac{r}{r})}{r}$$

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$$1 = \lambda \times \frac{21}{11.} = \frac{992}{1.} = \frac{1092}{0}$$

$$\frac{1092}{0} R_A = \frac{992}{1.} R_B$$

$$\Rightarrow \frac{R_A}{R_B} = \left(\frac{\frac{992}{1.}}{\frac{1092}{0}} \right) = \frac{9 \times 0.92}{16 \times 4.94} = \frac{1092}{172}$$

$$S = \sigma R^2 \Rightarrow \frac{S_A}{S_B} = \frac{9}{16}$$

$$\frac{\sqrt{10} \times DC}{4} \times \sqrt{10} = \sqrt{10} \times DC \Rightarrow DC = 4$$

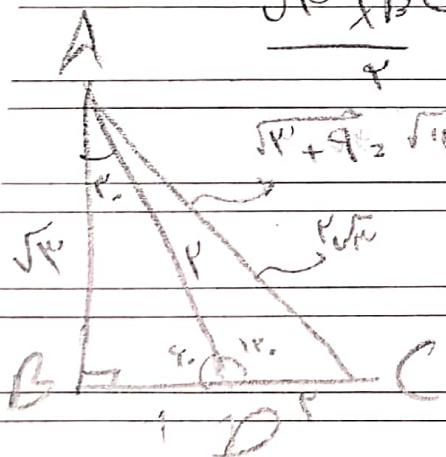
$$S_{ABC} = \sqrt{10}$$

$$\sin 45^\circ$$

$$S_{ABC} = S_{ABD} + S_{ADC}$$

$$\Rightarrow \sqrt{10} = \frac{\sqrt{10}}{4} + S_{ADC}$$

$$\Rightarrow S_{ADC} = \frac{\sqrt{10}}{4}$$



Change in position of D is 4 units

$$S_{ABD} = \sqrt{10}$$

$$\sin 45^\circ \times 4 \times \frac{\sqrt{10}}{2} = \frac{\sqrt{10}}{2}$$

$$\Rightarrow \sin 45^\circ \times \frac{\sqrt{10}}{2} = \frac{\sqrt{10}}{2} \Rightarrow \sin 45^\circ = \frac{\sqrt{10}}{2\sqrt{10}} = \frac{1}{2} \Rightarrow$$

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