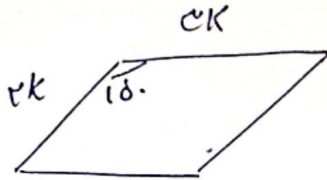


$$S = \frac{1}{2} AC \sin \alpha \Rightarrow F_1 d = \frac{1}{2} \times 4 \times \sqrt{r} \times m \Rightarrow$$

$$F_1 F_2 m = 4d \quad m = \sqrt{\frac{r}{2}} \Rightarrow \sin \alpha \sqrt{\frac{r}{2}} \propto \frac{40}{100}$$

$$\frac{100}{40} = \sqrt{2}$$



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

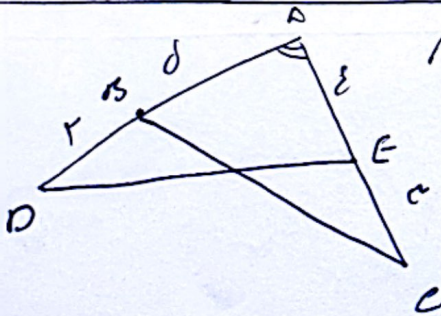
$$S = \frac{1}{2} \times CK \times PK \Rightarrow PK^2 = 8E$$

$$CK = 9\sqrt{r}$$

$$PK = 4\sqrt{r}$$

$$(9 \times 4\sqrt{r}) + 1 \times \sqrt{r} = \sqrt{r} \times \sqrt{r}$$

$$K^2 = 1A \quad K = \sqrt{r}$$



Area

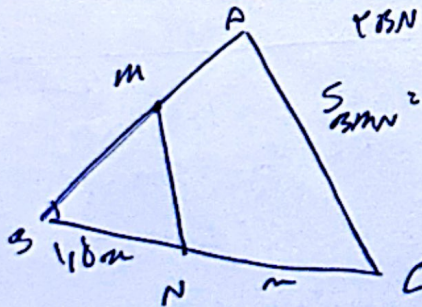
$$S_{BDC} = \frac{1}{2} \times \delta \times \sqrt{r} \times \sin \alpha = \sqrt{r} \delta \sin \alpha$$

$$S_{ADE} = \frac{1}{2} \times \epsilon \times \sqrt{r} \times \sin \alpha = \sqrt{r} \epsilon \sin \alpha$$

$$\sqrt{r} \delta \sin \alpha - \sqrt{r} \epsilon \sin \alpha = 4 \delta \sin \alpha = 4 \sqrt{r} \delta \sin \alpha = \frac{1}{r}$$

$$\delta = \frac{1}{4\sqrt{r}}$$

$$\tan \theta = \frac{1}{\sqrt{r}}$$



$$r_{BN} = r_{NC} \quad r_{BN} = 4 \delta m$$

$$S_{BMN} = \frac{1}{2} \times r_{BM} \times 4 \delta m \times \sin \alpha$$

$$S_{ABC} = \frac{1}{2} \times r_{BA} \times r_{CA} \times \sin \alpha$$

$$\frac{S_{ABC}}{S_{BMN}} = r \Rightarrow \frac{\delta r_{BA}}{r_{BM}} = r$$

$$4 r_{BM} = \delta r_{BA} \quad r_{BM} = \frac{\delta}{4} r_{BA} \Rightarrow r_{MA} = \frac{3}{4} r_{BA}$$

$$\frac{r_{BM}}{r_{MA}} = \frac{\frac{\delta}{4} r_{BA}}{\frac{3}{4} r_{BA}} = \frac{\delta}{3} = \frac{1}{10}$$

$$\frac{1}{|\cos \alpha|} - \frac{\sin \alpha}{\cos \alpha} = \frac{1 + \sin \alpha}{\cos \alpha} = \frac{1 - \sin \alpha}{|\cos \alpha|}$$

$$\cos \alpha = -\frac{1}{2}$$

$$-\cos \alpha = \frac{1}{2}$$

$$\frac{1}{\cos \alpha} = -2 \Rightarrow \cos \alpha = -\frac{1}{2}$$

$$|\sin \alpha| = -\sin \alpha \Rightarrow \sin \alpha < 0 \Rightarrow \sin \alpha = -\frac{\sqrt{3}}{2}$$

$$\sin \alpha = -\frac{\sqrt{3}}{2}$$