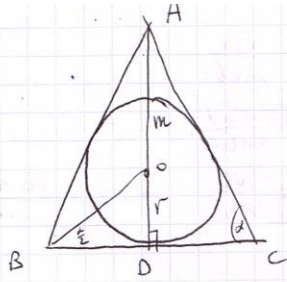


76  
6

(1)



$$\frac{r}{BD} = \tan \frac{\alpha}{2}$$

$\Delta BOE$

$$BD = \frac{r}{\tan \frac{\alpha}{2}}$$

$$BC = 2BD = \frac{2r}{\tan \frac{\alpha}{2}}$$

$\Delta ABC \sim \Delta BOE$

$$2R = \frac{BC}{\sin \alpha}$$

$$\frac{r}{R} = \tan \frac{\alpha}{2} \sin \alpha \leftarrow 2R = \frac{2r}{\tan \frac{\alpha}{2} \sin \alpha}$$

$$(2) AB = \frac{BD}{\cos \alpha} = \frac{2r}{\tan \frac{\alpha}{2} \cos \alpha}$$

$\Delta ABD \sim \Delta BOE$

$$\frac{AB}{BD} = \frac{AO}{OD}$$

$$\frac{\frac{2r}{\tan \frac{\alpha}{2} \cos \alpha}}{\frac{2r}{\tan \frac{\alpha}{2}}} = \frac{m}{r} \rightarrow r = m \cos \alpha$$

$\Delta BOE \sim \Delta ABD$

$$\frac{r}{R} = \tan \frac{\alpha}{2} \sin \alpha$$

$$\frac{m \cos \alpha}{R} = \tan \frac{\alpha}{2} \cdot 2 \sin \frac{\alpha}{2} \cos \frac{\alpha}{2} = \frac{\sin \frac{\alpha}{2}}{\cos \frac{\alpha}{2}} \cdot 2 \sin \frac{\alpha}{2} \cos \frac{\alpha}{2}$$

$$R = \frac{m}{2 \sin \frac{\alpha}{2}}$$