

$$S_{\triangle BMN} = \frac{1}{2} \times \overline{BM} \times \overline{BN} \cdot \sin B$$

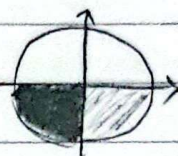
$$S_{\triangle ABC} = \frac{1}{2} \times \overline{AB} \times \overline{BC} \cdot \sin B \quad \text{--- 9}$$

$$\frac{\overline{BM} \cdot \overline{BN}}{\overline{AB} \cdot \overline{BC}} = \frac{S_{\triangle BMN}}{S_{\triangle ABC}} = \frac{\overline{BN}}{\overline{BC}} = \frac{r}{d} \rightarrow S_{\triangle BMN} = \frac{r}{d} S_{\triangle ABC} = \frac{r}{1}$$

$$\frac{S_{\triangle ABC}}{S_{\triangle BMN}} = \frac{1}{\frac{r}{d}} = \frac{d}{r} = \frac{\overline{AB}}{\overline{BM}} = \frac{1}{r} \rightarrow \overline{AM} = \overline{AB} - \overline{BM} = \overline{AB} - \frac{1}{r} \overline{AB} = \frac{r-1}{r} \overline{AB}$$

$$\Rightarrow \overline{BM} = \overline{AM} \rightarrow \frac{\overline{BM}}{\overline{AM}} = 1$$

$$\frac{|\sin \alpha|}{\cos \alpha} = \frac{-1}{\frac{\cos}{\sin \alpha}} = \frac{-\sin \alpha}{\cos \alpha} \Rightarrow \sin \alpha < 0$$



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

$$\frac{1}{|\cos \alpha|} \cdot \frac{\sin \alpha}{\cos \alpha} \xrightarrow{\cos \alpha} \frac{1}{-\cos \alpha} + \frac{\sin \alpha}{-\cos \alpha} = \frac{1 + \sin \alpha}{-\cos \alpha} \quad \checkmark \quad \frac{1}{-\cos \alpha} + \frac{\sin \alpha}{-\cos \alpha} = \frac{1 + \sin \alpha}{-\cos \alpha}$$

= 4 notes

