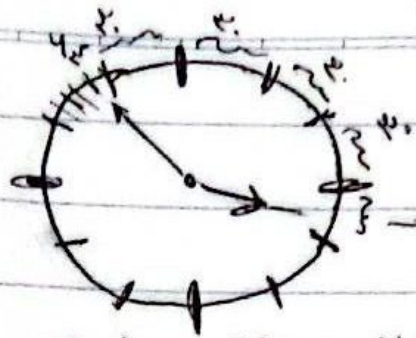


النسبة بيني

①

الف



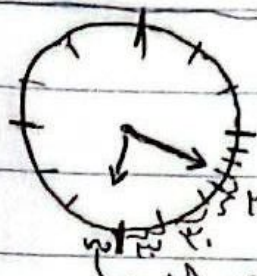
$$F \times P = 120 + 27 + 9 = 156$$

$$\frac{dF}{F} = 27$$

$$\rightarrow \frac{d}{d} \times \frac{dF}{F} - 9 = 27 - 9 = 18 \rightarrow 18 - 20V = 156$$

②

الف



$$P \times P = 4 + 9 + 12 = 25$$

$$\frac{1}{P} = 9$$

$$\rightarrow \frac{d}{d} \times \frac{1}{P} - \frac{1}{P} = \frac{1}{P} = 25$$

③

الف

$$\frac{\pi}{4} \times P = \frac{P}{K}$$

$$\rightarrow \frac{\pi}{4} \times P + \frac{P}{K} = \frac{P}{K} + 9$$

④

الف

$$\frac{1}{P} \times \sin \hat{A} = \frac{1}{K} \times \frac{5P}{K} = 1.5P$$

$$\rightarrow C = \sqrt{12 + 4K - K \times K \times \frac{1}{K}} = \sqrt{9} = 3 \rightarrow V + 1 + 2 = 60$$

⑤

الف

$$\hat{B} + \hat{C} = 120 \rightarrow \hat{A} = 120 \rightarrow \frac{120}{\sin \alpha} = \frac{120}{\sin \beta}$$

$$P = \frac{5P}{\sin \beta} \rightarrow \frac{5P}{P} = \sin \beta \rightarrow B = 90 \rightarrow C = 102$$

$$\rightarrow \frac{K \times P}{120} = \frac{P}{C} \rightarrow \frac{C \times P}{120} = \frac{P}{C} \rightarrow \frac{C^2}{120} = \frac{P}{C} \rightarrow \frac{C^3}{120} = P$$

$$(4) \frac{-\tan \alpha + r \tan \alpha}{-\tan \alpha - \tan \alpha} = \frac{r \tan \alpha}{-r \tan \alpha} = -1$$

$$(5) \frac{\pi}{r} = \frac{\pi}{r} = 12^\circ \quad \frac{r \tan(\frac{\pi}{r} - 12^\circ) + \tan(\frac{\pi}{r} + 12^\circ)}{r \tan(\frac{\pi}{r} - 12^\circ) - \tan(\frac{\pi}{r} + 12^\circ)}$$

$$= \frac{r \cot 12^\circ - \cot 12^\circ}{-r \tan 12^\circ - \cot 12^\circ} = \frac{\cot 12^\circ}{-r \tan 12^\circ - \cot 12^\circ} \quad \frac{\tan 12^\circ = a}{\frac{1}{a}} = \frac{-1}{ra + 1}$$

$$(6) \frac{\sin^2 \alpha + \cos^2 \alpha + r \sin \alpha \cos \alpha + \sin^2 \alpha + \cos^2 \alpha - r \sin \alpha \cos \alpha}{\sin^2 \alpha - \cos^2 \alpha} = r \cos \alpha$$

$$\frac{\sin \alpha - \cos \alpha}{\sin \alpha + \cos \alpha} = r \quad \frac{\tan \alpha + 1 + \tan \alpha + 1}{\tan \alpha - 1} = \frac{r \tan \alpha + 1}{\tan \alpha - 1} = \frac{r \cos \alpha}{\sin \alpha - \cos \alpha}$$

$$r \tan \alpha - r = r \tan \alpha + r \tan \alpha - 2$$

$$(7) \frac{\tan \alpha - r + \frac{1}{\cos \alpha}}{\tan \alpha + r - \frac{1}{\cos \alpha}} = r \rightarrow \frac{\tan \alpha - r + 1 + \tan \alpha}{\tan \alpha + r - 1 - \tan \alpha} = r$$

$$r \tan \alpha - 1 = r \rightarrow \tan \alpha = \frac{2}{r}$$

$$(8) \cos^2 \alpha = 1 - r \sin^2 \alpha \quad 1 - \frac{r}{r} = \frac{r - r}{r} = \frac{\sqrt{r} + \sqrt{r}}{r}$$

$$\cos^2 \alpha = 1 - r \sin^2 \alpha = \frac{\sqrt{r} + \sqrt{r}}{r}$$