

مسئله ۱
در $\cos n$ ضرب
کنیم

$$\frac{\frac{\sin n}{\cos n} + \frac{\cos n}{\cos n}}{\frac{\sin n}{\cos n} + \frac{\cos n}{\cos n}} + \frac{\frac{\sin n}{\cos n} - \frac{\cos n}{\cos n}}{\frac{\sin n}{\cos n} + \frac{\cos n}{\cos n}} = r$$

$$\frac{\tan n + 1}{\tan n - 1} + \frac{\tan n - 1}{\tan n + 1} = r \Rightarrow \frac{\tan^2 n + 1 + r \tan n + \tan^2 n - 1}{\tan^2 n - 1} = r$$

$$\Rightarrow \frac{r \tan^2 n + r}{\tan^2 n - 1} = r \Rightarrow r \tan^2 n + r = r \tan^2 n - r$$

$$\boxed{\tan^2 n = 0}$$

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

$$\Rightarrow r \tan^2 n - 1 = r \Rightarrow \boxed{\tan^2 n = \frac{0}{r}}$$

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

$$\text{الف) } \cos^2 \alpha = \frac{1 - \sin^2 \alpha}{r} \Rightarrow \cos^2 (45^\circ) = \frac{1 + \frac{\sqrt{r}}{r}}{r} = \frac{1}{r} + \frac{\sqrt{r}}{r} = \frac{r + \sqrt{r}}{r}$$

$$\cos (45^\circ) = \frac{1}{r} \sqrt{r + \sqrt{r}}$$

$$\text{ب) } \sin (45^\circ) \Rightarrow$$

$$\sin (45^\circ) = \cos (45^\circ) = \frac{\sqrt{r + \sqrt{r}}}{r}$$

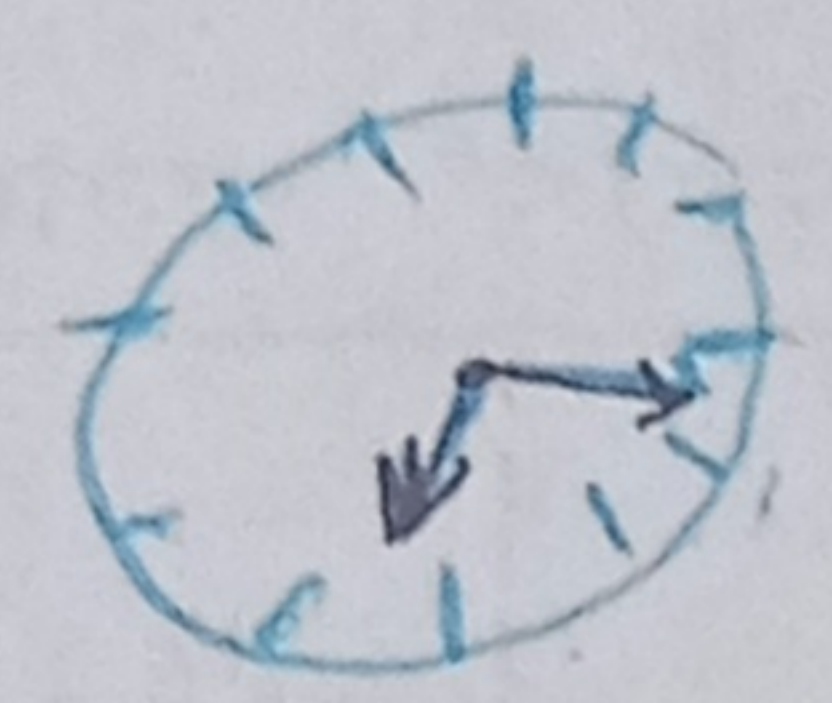
(ب)

$$|10/5 m - 30 H| = |10/5 \times 54 - 30 \times 30| = 300$$

$$300 - 300 = 100$$

(الف)

$$\frac{54}{5} + 30 \times 30 + 30 \times 4 = 100$$

$$40 + 9 + 11 = 11$$

$$3 \times 4 = 12$$

$$3 \times 30 = 90$$

$$\frac{1}{3} = 9$$

(ب)

$$|10/5 \times 11 - 4 \times 30| = 110 - 120 = 10$$

$$\frac{\alpha r^2}{r} = \frac{\pi}{4 \times 12} \times 3^2 = \frac{3}{4} \pi$$

$$\widehat{AB} = \alpha r = \frac{\pi}{4} \times 3 = \frac{\pi}{4}$$

$$P = 3 + 3 + \frac{\pi}{2} = 4 + \frac{\pi}{2}$$

$$S = \frac{1}{2} AB \times AC \times \sin \alpha = \frac{1}{2} \times 5 \times 11 \times \frac{\sqrt{2}}{2} = 10\sqrt{2}$$

$$BC = \sqrt{5^2 + 11^2 - 2 \times 5 \times 11 \times \frac{1}{2} \times 5} = 5$$

$$P = 5 + 11 + 5 = 21$$

$$BC = \sqrt{AC^2 + AB^2 - 2AB \cos \alpha}$$

$$\hat{A} = 110 - (\hat{B} + \hat{C}) = 110 - 120 = 10$$

$$\frac{\sin A}{BC} = \frac{\sin B}{AC} = \frac{\sin C}{AB}$$

$$\frac{1}{10} = \frac{\sin B}{10\sqrt{2}} \Rightarrow \sin B = \frac{\sqrt{2}}{2} \Rightarrow \hat{B} = \frac{\pi}{4}, \hat{C} = \frac{60}{110} = \frac{3}{11} \pi$$

$$\tan(\pi - \alpha) = -\tan \alpha$$

$$\tan(\pi - \alpha) = -\tan \alpha$$

$$\tan(\pi + \alpha) = \tan \alpha$$

$$\tan(\pi + \alpha) = \tan \alpha$$

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

$$A = \frac{r \tan(90 - 10) + \tan(90 + 10)}{r \tan(110 - 10) - \tan(r \times 10 - 10)} = \frac{r \times \frac{1}{a} - 1 \times \frac{1}{a}}{-ra - \frac{1}{a}} = \frac{\frac{1}{a}}{-ra - \frac{1}{a}} = \frac{-1}{ra + 1}$$