

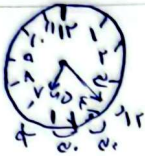
$$(3 \times 4) + 27 + 6 = 159 \quad \checkmark$$

(الف)



$$|0.15M - 0.1h| = |0.15 \times 0.4 - 0.1| = 0.07 \Rightarrow 0.07 - 0.07 = 0 \quad \checkmark$$

(ب)



$$0 + 0 + 12 + 9 = 21 \quad \checkmark$$

(الف)

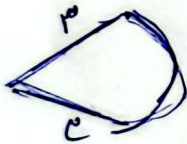
$$|0.15M - 0.1h| = |0.15 \times 11 - 1.1| = |-1| = 1 \quad \checkmark$$

(ب)

$$L = \theta \times r \Rightarrow \frac{\pi}{12} \times 9 = \frac{\pi}{4}$$

$$\frac{\pi}{12} \times 9 = \frac{\pi}{4} \quad \checkmark$$

(الف)



$$L = \theta \cdot r \Rightarrow \frac{\pi}{2} \times r = \frac{\pi}{2}$$

$$P = r + r + \frac{\pi}{2} \Rightarrow 2 + \frac{\pi}{2}$$

(ب)

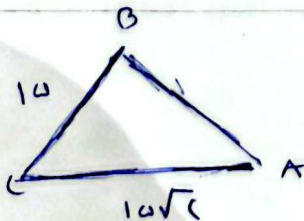
$$\frac{1}{2} ab \sin \alpha = \frac{1}{2} \times 10 \times 10 \times \frac{\sqrt{2}}{2} = 10\sqrt{2} \quad \checkmark$$

(الف)

$$c^2 = \sqrt{a^2 + b^2 - 2ab \cos \alpha} = \sqrt{9^2 + 10^2 - 18 \times \frac{1}{2}} = \sqrt{149} = \sqrt{149} \quad \checkmark$$

$$P = 10 + 10 + \sqrt{149} = 20 + \sqrt{149} \quad \checkmark$$

(ب)



1.46

$$B + C = 100 \Rightarrow A = 80^\circ$$

$$\frac{\sin A}{10} = \frac{\sin B}{10\sqrt{2}} = \frac{1}{2} = \frac{\sin B}{\sqrt{2}} \Rightarrow \sin B = \frac{\sqrt{2}}{2}$$

$$B = 45 \Rightarrow 10 + C = 100 \Rightarrow C = 90 \Rightarrow \frac{\sqrt{2}}{2}$$



$$\frac{180}{100} \times \frac{\pi}{2} \Rightarrow \frac{9\pi}{10}$$

5

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

(2)

$$r \tan \left(\frac{\pi}{r} - \frac{\pi}{1r} \right) + \tan \left(\frac{\pi}{r} + \frac{\pi}{1r} \right)$$

$$r \tan \left(\pi - \frac{\pi}{1r} \right) - \tan \left(e \frac{\pi}{r} - \frac{\pi}{1r} \right)$$

و این صفر

(1)

$$\cancel{r \tan \frac{\pi}{1r}} * \frac{r \cot \frac{\pi}{1r} - \cot \frac{\pi}{1r}}{-e \tan \frac{\pi}{1r} + \cot \frac{\pi}{1r}}$$

$$\frac{\frac{r}{a} - \frac{1}{a}}{-ea + \frac{1}{a}} = \frac{\frac{1}{a}}{-ea - 1}$$

$$-ea - 1$$

$$\frac{\sin x + \cos x}{\sin x - \cos x} \times \frac{\sin x - \cos x}{\sin x + \cos x} = \frac{\sin^2 x + \cos^2 x + r \sin x \cos x + \sin^2 x + \cos^2 x - r \sin x \cos x}{\sin^2 x - \cos^2 x}$$

$$\frac{r \sin^2 x + r \cos^2 x}{\sin^2 x - \cos^2 x} = r \Rightarrow r \sin^2 x - r \cos^2 x = r \sin^2 x + r \cos^2 x$$

$$\Rightarrow \boxed{\sin^2 x = \cos^2 x} \Rightarrow \tan^2 x = \frac{\sin^2 x}{\cos^2 x} = 1 \quad \checkmark$$

(2)

$$\frac{\cos^2 x}{\sin^2 x}$$

$$\frac{1 - \cos^2 x - r \cos^2 x + 1}{1 - \cos^2 x + r \cos^2 x - 1} = \frac{r - e \cos^2 x}{\cos^2 x} = e$$

(1)

$$e \cos^2 x = r - e \cos^2 x \Rightarrow 5 \cos^2 x = r \Rightarrow \cos^2 x = \frac{r}{5}$$

$$\tan^2 x + 1 = \frac{1}{\cos^2 x} \Rightarrow e = 1 + \tan^2 x \Rightarrow \tan^2 x = r$$

$$\cos(180^\circ) = \frac{1 + \cos 0^\circ}{r} = \frac{1 + \frac{\sqrt{r}}{r}}{r} = \frac{r + \sqrt{r}}{r}$$

$$\cos 180^\circ = \frac{r + \sqrt{r}}{r} = \frac{\sqrt{r + \sqrt{r}}}{r}$$

$$\sin(90^\circ) = \frac{1 - \cos 180^\circ}{r} = \frac{1 - (-\frac{\sqrt{r}}{r})}{r} = \frac{r + \sqrt{r}}{r}$$

$$\sin 90^\circ = \frac{\sqrt{r + \sqrt{r}}}{r}$$

(1)

1.

سوال ۱۷

$$A = \frac{r \tan(\frac{\pi}{r} - i\omega) + \tan(\frac{\pi}{r} + i\omega)}{r \tan(\pi - i\omega) - \tan(\frac{\pi}{r} - i\omega)} = \frac{r \cot i\omega - \cot i\omega}{-r \tan i\omega - \cot i\omega} =$$

$$\frac{\cot i\omega}{-r \tan i\omega - \cot i\omega} = \frac{\frac{1}{a}}{-\frac{1}{a} - \frac{1}{a}} = \frac{-1}{ra + 1}$$

سوال ۱۸

$$\sin^r \theta - r \cos^r \theta + 1 = r \sin^r \theta + 1 \cos^r \theta - r \rightarrow r \sin^r \theta + 1 \cos^r \theta = \omega$$

$$\rightarrow r \sin^r \theta + r \cos^r \theta + 1 \cos^r \theta = \omega \rightarrow r \cos^r \theta = r \rightarrow \cos^r \theta = \frac{r}{r}$$

$$1 + \tan^r \theta = \frac{1}{\cos^r \theta} \rightarrow \tan^r \theta = \frac{\omega}{r}$$