

المسألة الأولى

19, 25

$$\text{أ)} \quad 27 \times \frac{\pi}{180} = \frac{27\pi}{180} \checkmark \quad \text{ب)} \quad 144 \times \frac{\pi}{180} = \frac{4\pi}{5} \checkmark$$

(1) (2)

$$\text{ج)} \quad \frac{5}{12} \times 180 = 75^\circ \checkmark \quad \text{د)} \quad \frac{8}{9} \times 180 = 160^\circ \checkmark$$

$$\frac{a\pi}{\lambda} = \frac{a}{\lambda} \times 180 = 22/80^\circ \checkmark \quad \frac{144a}{9} = \frac{4}{10} \times \frac{144a}{9} = 14/10 a \checkmark$$

(2) (2)

$$5/8 a = 180 \Rightarrow a = 288 \checkmark$$

$$\text{أ)} \quad \left(\frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{2}\right) - \left(\frac{\sqrt{2}}{2} \times \frac{1}{\sqrt{2}}\right) - 1 + 2 = 1 \checkmark$$

(2) (3)

$$\text{ب)} \quad \frac{\frac{1}{\sqrt{2}} + 1 + \sqrt{2}}{\frac{\sqrt{2}}{2} - \frac{1}{\sqrt{2}}} = \frac{1 + \sqrt{2}}{1 - \sqrt{2}} \checkmark$$

$$\sin^2 \theta = \frac{1}{2} + \frac{1}{2} = 1 \Rightarrow \sin \theta = \pm \frac{\sqrt{2}}{2} \Rightarrow \tan \theta = \pm 1$$

سؤال لفقة واحد

(1, 15)

$$\tan \theta = \frac{\frac{2}{\sqrt{2}} \times \frac{2}{\sqrt{2}}}{\frac{2}{\sqrt{2}}} = \frac{2}{\sqrt{2}} = \frac{2\sqrt{2}}{2} = \sqrt{2} \checkmark \Rightarrow \theta = 45^\circ \checkmark$$

(5)

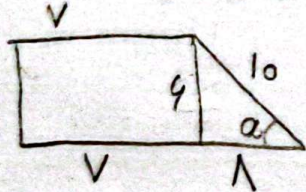
(1, 5)

$$\frac{20}{180} \times \pi = \frac{\pi}{9}$$

$$\theta = \frac{\pi}{3}$$

$$\frac{1 - \cos \theta - \cos \theta}{\cos \theta} = 1 \checkmark$$

(2) (4)



$$\rightarrow D = 21 \checkmark$$

(2) (5)

$$Vd + AB^2 = 100$$

$$\sin 45^\circ = \frac{\sqrt{2}}{2} \Rightarrow BD = d\sqrt{2} \Rightarrow AB = d \xrightarrow{\sin 45^\circ = 1} BC = d$$

(2) (1)

$$DC = BD - BC = d\sqrt{2} - d \checkmark$$

المسألة الثانية

(2)

$$1 + \left(\frac{1}{\sqrt{2}}\right)^2 = \frac{1}{\cos^2 \alpha} \Rightarrow \cos^2 \alpha = \frac{1}{2} \xrightarrow{\cos 45^\circ} \cos \alpha = \frac{1}{\sqrt{2}}$$

(10)

(2)

$$\frac{9}{10} + \sin^2 \alpha = 1 \rightarrow \sin^2 \alpha = \frac{1}{10} \xrightarrow{\sin 30^\circ} \sin \alpha = \frac{1}{\sqrt{10}} \checkmark$$