

مردقیقه در روز  
12/11

$$\Delta \phi \times \phi = 3240$$

$$3 \times 30 = 90$$

$$20$$

اتنا باد خوراد

(الف)

$$|3240 - 117| = 20V$$

$$30 - 10V = 10V$$

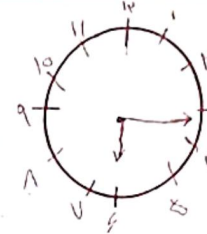
$$|30 - 10V| = 20V \rightarrow 30 - 10V = 20V \rightarrow 30 - 20V = 10V$$

$$5$$

$$11 \times 0.5 = 9 \rightarrow 11 \times 9 = 119$$

$$11 \times 9 = 108$$

$$|119 - 108| = 11$$



(الف)

$$|30 - 10V| = |(30 \times 9) - (10 \times 11)| = 110 - 99 = 11$$

$$\frac{1}{4} \times \frac{12}{5} \times \frac{(11)}{1} = \frac{9 \times 12}{11} = \frac{108}{11}$$

$$\frac{12}{5} \times \frac{11}{1} = \frac{12 \times 11}{5} = \frac{132}{5}$$

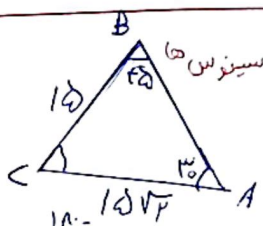
$$\frac{1}{4} \times 12 \leftarrow \text{مساحت قطاع}$$

$$5$$

$$4 \times 5 \times \sin \theta \times \frac{1}{4} = \frac{1}{4} \times 5 \times \frac{\sqrt{2}}{2} = 10\sqrt{2}$$

$$CB = \sqrt{AB^2 + AC^2 - 2(AB \times AC) \cos \theta} = \sqrt{10^2 + 5^2 - 10 \times 5 \times \frac{1}{2}} = \sqrt{75} = 5\sqrt{3}$$

$$V + 1 + 5 = 11$$



$$\frac{CB}{\sin A} = \frac{CA}{\sin B}$$

$$\frac{10}{\frac{1}{2}} = \frac{10\sqrt{2}}{2}$$

$$\frac{10\sqrt{2} \times \frac{1}{2}}{10} = \frac{\sqrt{2}}{2}$$

$$\sin B = \frac{\sqrt{2}}{2} \rightarrow B = 45$$

$$C = (120 + 45) = 165 \rightarrow V_2 = 165$$

$$\rightarrow F_2 = \frac{12}{5}, 100 \times \frac{12}{11} = \frac{1200}{11}$$

$$\frac{\tan(\theta_1 - \theta_2) + \tan(\theta_3 + \theta_4)}{\tan(\theta_1 - \theta_2) - \tan(\theta_3 + \theta_4)} = \frac{1 + \tan \theta}{1 - \tan \theta} = -1$$

$$5$$

سوال ۷

$$\frac{x}{y} \times \frac{y}{x} = 1 \rightarrow \frac{y + \tan(10^\circ) + \tan(10^\circ)}{y + \tan(10^\circ) - \tan(10^\circ)} = \frac{y \cot(10^\circ) - 10 \cot(10^\circ)}{-y \cot(10^\circ) - \cot(10^\circ)} = \frac{y}{-y} - \frac{1}{-1} = \frac{y}{-y} + 1$$

$$\frac{y}{-y} + 1 = \frac{1}{\tan(10^\circ)}$$

$$\frac{1}{-y} + 1 = \frac{1}{\tan(10^\circ)}$$

$$\frac{1}{-y} = \frac{1}{\tan(10^\circ)} - 1$$

$$\frac{1}{-y} = \frac{1 - \tan(10^\circ)}{\tan(10^\circ)}$$

$$y = \frac{\tan(10^\circ)}{1 - \tan(10^\circ)}$$

سوال ۸

$$\frac{(\sin^2 x + \cos^2 x) + (\sin^2 x - \cos^2 x)}{\sin^2 x - \cos^2 x} = 1 \Rightarrow \frac{2 \sin^2 x}{\sin^2 x - \cos^2 x} = 1 \Rightarrow \sin^2 x - \cos^2 x = 2 \sin^2 x$$

$$\sin^2 x - \cos^2 x = 2 \sin^2 x \Rightarrow -\cos^2 x = \sin^2 x \Rightarrow \cos^2 x = -\sin^2 x$$

$$\cos^2 x = 1 - \sin^2 x \Rightarrow 1 - \sin^2 x = -\sin^2 x \Rightarrow 1 = 0$$

$$\sin^2 x = \frac{1}{2} \Rightarrow \sin x = \frac{1}{\sqrt{2}} \Rightarrow x = 45^\circ$$

سوال ۹

$$\frac{\sin^2 x - 2(1 - \sin^2 x) + 1}{\sin^2 x + 2(1 - \sin^2 x) - 1} = \frac{\sin^2 x - 2 + 2 \sin^2 x + 1}{\sin^2 x + 2 - 2 \sin^2 x - 1} = \frac{3 \sin^2 x - 1}{1 - \sin^2 x} = 5$$

$$3 \sin^2 x - 1 = 5(1 - \sin^2 x) \Rightarrow 3 \sin^2 x - 1 = 5 - 5 \sin^2 x \Rightarrow 8 \sin^2 x = 6 \Rightarrow \sin^2 x = \frac{3}{4} \Rightarrow \sin x = \frac{\sqrt{3}}{2} \Rightarrow x = 60^\circ$$

سوال ۱۰

$$\cos 4\alpha = \cos^2 \alpha - \sin^2 \alpha \rightarrow \frac{\sqrt{2}}{2} = \cos^2 \alpha - \sin^2 \alpha$$

$$\frac{\sqrt{2}}{2} + 1 = \cos^2 \alpha \Rightarrow \cos^2 \alpha = \frac{1 + \sqrt{2}}{2} \Rightarrow \cos \alpha = \frac{1 + \sqrt{2}}{2}$$

$$\frac{\sqrt{1 + \sqrt{2}}}{2}$$

ب)  $\cos 4\alpha = \cos^2 \alpha - \sin^2 \alpha$   $\Rightarrow \cos^2 \alpha = \frac{1 + \sqrt{2}}{2}$   $\Rightarrow \cos \alpha = \frac{1 + \sqrt{2}}{2}$