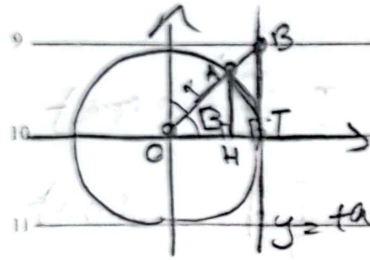


یکه (مستطیل) / (دایره) متر

نقطه

11,5



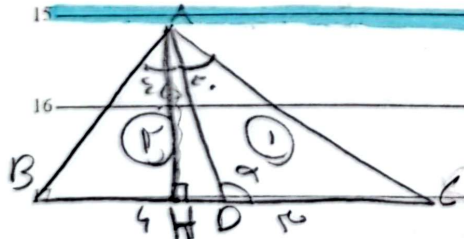
$$\sin \alpha = \cos \beta \quad \text{و} \quad OT = OA = 1$$

$$\tan \beta = BT \quad \text{و} \quad \cos \beta = \frac{OH}{AO} = \frac{OT}{OB} \quad (1)$$

$$\sin \beta = \frac{BT}{OB} = \frac{AH}{AO}$$

$$OB = 1 = AB \rightarrow \frac{AO}{AH} = 1 = AB \rightarrow \frac{1}{\cos \beta} = 1 = AB$$

$$\cos \beta = \sin \alpha \rightarrow \frac{1}{\sin \alpha} = 1 = AB = \frac{1 - \sin \alpha}{\sin \alpha} \rightarrow 2 \quad (2)$$



$$\frac{S_T}{S_1} = \frac{BD \times AH \times \frac{1}{r}}{DC \times AH \times \frac{1}{r}} = \frac{BD}{DC} = \frac{r}{r} = 1 \quad (3)$$

$$\Rightarrow \frac{S_T}{S_1} = 1 \Rightarrow \frac{S_T}{S_1} = \frac{AB \times AD \times \frac{1}{r} \times \sin \theta}{AC \times AD \times \frac{1}{r} \times \sin \theta} \Rightarrow r = \frac{AB \times \sqrt{r}}{AC \times 1}$$

$$\left(\frac{AB}{AC} = \sqrt{r} \right) \rightarrow ? \quad (4)$$



Genobar

$$A \Rightarrow y^2 + \frac{1}{2} = 1 \rightarrow y^2 = \frac{1}{2} \rightarrow y = \pm \frac{\sqrt{2}}{2} \rightarrow +\frac{\sqrt{2}}{2} = y_A \quad (3)$$

$$B \Rightarrow x^2 + \frac{1}{2} = 1 \rightarrow x^2 = \frac{1}{2} \rightarrow x = \pm \frac{\sqrt{2}}{2} \rightarrow -\frac{\sqrt{2}}{2} = x_B$$

$$A: \left| \frac{1}{\sqrt{2}} \right|, B: \left| \frac{\sqrt{2}}{2} \right|, C: |1| \Rightarrow \hat{A} = 45^\circ, \hat{B} = 135^\circ, \hat{C} = 90^\circ$$

$$\angle AOB = 90^\circ, \angle AOC = 135^\circ, \angle BOC = 135^\circ$$

$$\begin{aligned} S_{AOB} &= \frac{1}{2} \times \frac{1}{\sqrt{2}} \times \frac{\sqrt{2}}{2} \times \sin 90^\circ = \frac{1}{4} \\ S_{AOC} &= \frac{1}{2} \times \frac{1}{\sqrt{2}} \times 1 \times \sin 135^\circ = \frac{1}{4} \\ S_{BOC} &= \frac{1}{2} \times \frac{\sqrt{2}}{2} \times 1 \times \sin 135^\circ = \frac{1}{4} \end{aligned} \quad \left. \begin{array}{l} \\ \\ \end{array} \right\} S_{\text{total}} = \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = \frac{3}{4}$$

$$\text{مثلاً } AC = \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{\sqrt{2}}{2}\right)^2} = \sqrt{\frac{1}{2} + \frac{2}{2}} = \sqrt{2}$$

$$\text{مثلاً } BC = \sqrt{\left(\frac{\sqrt{2}}{2}\right)^2 + \left(\frac{\sqrt{2}}{2}\right)^2} = \sqrt{\frac{2}{2} + \frac{2}{2}} = \sqrt{2}$$

$$\text{مثلاً } AB = \sqrt{\left(\frac{1}{\sqrt{2}}\right)^2 + \left(\frac{\sqrt{2}}{2}\right)^2} = \sqrt{\frac{1}{2} + \frac{2}{2}} = \sqrt{2}$$

$$\text{المجموع } = \sqrt{2} + \sqrt{2} + \sqrt{2} = 3\sqrt{2}$$

$$\log^2 = \log^2 \rightarrow \log^2 = 2 \log^2 \rightarrow CH \rightarrow \text{المجموع}$$

$$CH = \frac{1}{2} \times 2 \log^2 = \log^2$$

$$AH \rightarrow \text{المجموع} \rightarrow AH = \frac{\sqrt{2}}{2} \times 2 \log^2 = \sqrt{2} \log^2$$

$$AH \propto BH \propto CH^2 \Rightarrow \frac{1}{2} \log^2 = \sqrt{2} \log^2 \propto BH$$

$$BH = \frac{1}{2\sqrt{2}} \log^2 = \frac{\sqrt{2}}{4} \log^2$$

$$S_{ABC} = \left(\frac{\sqrt{2}}{4} \log^2 + \frac{\sqrt{2}}{4} \log^2 \right) \times \log^2 \propto \frac{1}{2} \log^2$$

$$= \frac{\sqrt{2}}{2} (\log^2)^2 \rightarrow ? \quad S = \frac{1}{2} \times AB \times BC \times \sin 90^\circ$$

$$S = \frac{1}{2} \times \log^2 \times \log^2 \times \frac{1}{2} = \frac{1}{4} \times \log^2 \times \log^2 = \frac{1}{4} \log^4$$

$$1. \quad x^2 - x^2 - \sin^2 \alpha (r \sin^2 \alpha - 1) = x^2 - x^2 - \sin^2 \alpha (\sin^2 \alpha - \cos^2 \alpha) \quad (A)$$

$$2. \quad = r(\cos^2 \alpha - \cos^2 \alpha - \sin^2 \alpha (-\cos^2 \alpha)) = 1$$

$$3. \quad \cos^2 \alpha (r \cos^2 \alpha - 1) - \sin^2 \alpha (-\cos^2 \alpha) = 1$$

$$4. \quad \cos^2 \alpha (\cos^2 \alpha) - \sin^2 \alpha (-\cos^2 \alpha) = 1$$

$$5. \quad \cos^2 \alpha (\cos^2 \alpha + \sin^2 \alpha) = 1 \rightarrow \cos^2 \alpha = 1$$

$$6. \quad \sin^2 \alpha = \sqrt{1 - \cos^2 \alpha} = \sqrt{1 - 1} = 0 \rightarrow ?$$

$$7. \quad \underline{\hspace{2cm}}$$

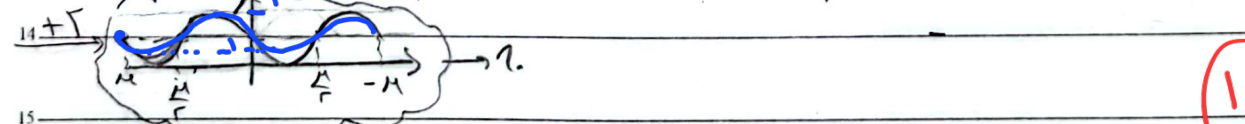
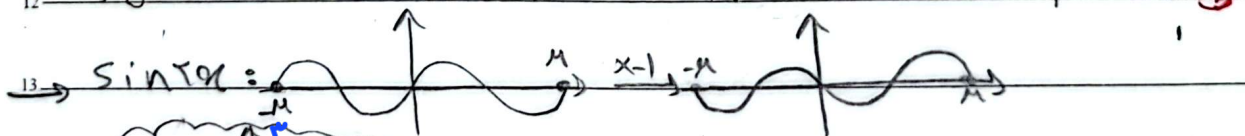
$$8. \quad \underline{\hspace{2cm}}$$

$$9. \quad \underline{\hspace{2cm}}$$

$$10. \quad \underline{\hspace{2cm}}$$

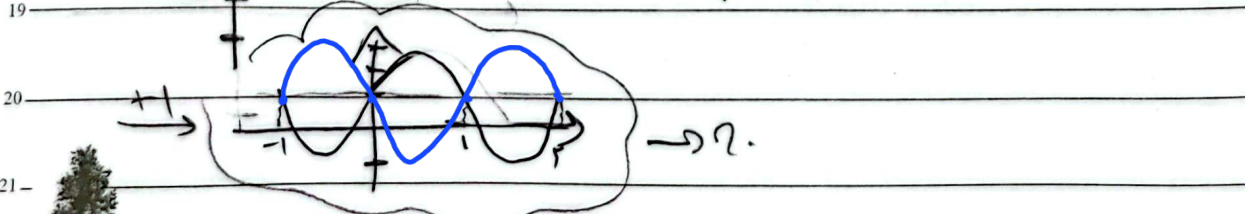
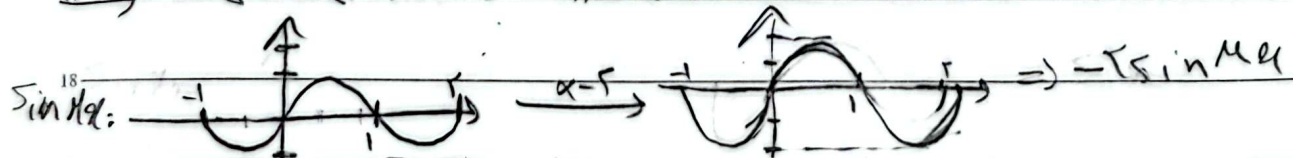
$$11. \quad \underline{\hspace{2cm}}$$

$$12. \quad \text{ii) } y = -r \sin \alpha \cos \alpha + r = -\sin^2 \alpha + r \rightarrow T = \frac{r}{r} = 1 \quad (B)$$



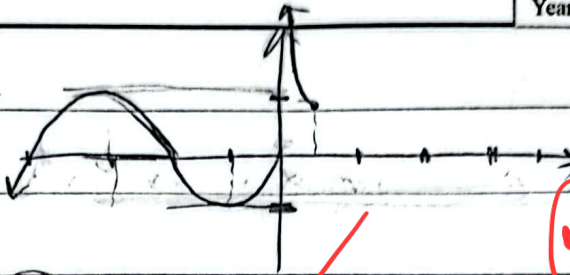
$$16. \rightarrow r \cos(\mu \alpha + \frac{\pi}{2}) + 1 = -r \sin(\mu \alpha) + 1 \rightarrow T = \frac{r}{1} = r$$

$$17. \rightarrow -1 \leq \cos \mu \alpha \leq 1 \rightarrow -1 \leq \sin \mu \alpha \leq 1$$



Senobar

$$f(x) \begin{cases} \cot x : 0 < x < \frac{\pi}{2} \\ \sin x : x \leq 0 \end{cases}$$



$$\rightarrow R.f = [-1, \infty) \rightarrow 2$$

$$f(x) = a + b \sin(cx) \cos(cx) \cos(\pi x) =$$

$$a + b \sin(\pi x) \cos(\pi x) = a + b \sin(2\pi x)$$

$$T = \text{period} = \frac{2\pi}{\omega} = \frac{2\pi}{2\pi} = 1 \Rightarrow C = \frac{2\pi}{1} = 2\pi$$

$$\text{max/min value} = \begin{cases} 1 & \text{if } \sin(2\pi x) = 1 \\ -1 & \text{if } \sin(2\pi x) = -1 \end{cases} \Rightarrow b = 1$$

$$-1 + a = 0 \Rightarrow a = 1 \Rightarrow \frac{bc}{a} = \frac{2\pi \times 1}{1} = 2\pi$$

$$\rightarrow a$$

$$T = \text{period} = 1 \Rightarrow \frac{2\pi}{b} = 1 \Rightarrow b = 2\pi$$

$$1 - (-1) = 2 \Rightarrow 2 = 2 \Rightarrow a = 1$$

$$-1 + c = -1 \Rightarrow c = 0$$

$$\Rightarrow \cos 2\pi x = 1 \Rightarrow \cos \pi x = 1 \Rightarrow \cos \pi x = \frac{1}{2}$$

$$|\sin \pi x| = \sqrt{1 - \cos^2 \pi x} = \sqrt{1 - \frac{1}{4}} = \frac{\sqrt{3}}{2}$$

$$|\tan \pi x| = \left| \frac{\sin \pi x}{\cos \pi x} \right| = \frac{\frac{\sqrt{3}}{2}}{\frac{1}{2}} = \sqrt{3} \rightarrow 2$$



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1 $-f'(x) = f'(-1) + 1/x \rightarrow f'(x) = f'(1)$ (10)

2 $x = [0, 1) \rightarrow y = -\frac{1}{x} + 1 \rightarrow y = -\frac{1}{x} + 1 = \frac{1}{x}$ (y)