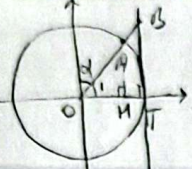
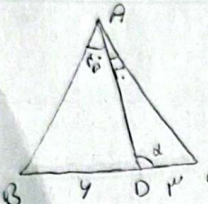
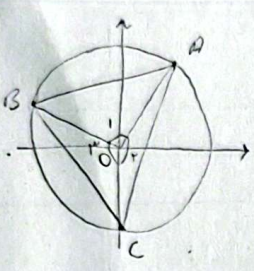
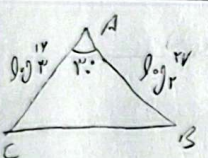


1   $O_1 = 90^\circ - \alpha$   
 $AH = \sin O_1 = \sin(90^\circ - \alpha) = \cos \alpha$   
 $BT = \tan O_1 = \tan(90^\circ - \alpha) = \cot \alpha \Rightarrow AB = OB - OA = \frac{1}{\sin \alpha} - 1$   
 $AM \parallel BT \Rightarrow \frac{AM}{BT} = \frac{OA}{OB} \Rightarrow \frac{\cos \alpha}{\cot \alpha} = \frac{1}{OB} \Rightarrow OB = \frac{\cot \alpha}{\cos \alpha} = \frac{1}{\sin \alpha}$

2   $\frac{S_{ACD}}{S_{ABD}} = \frac{CD}{BD} = \frac{3}{4} = \frac{AC \times AD \times \frac{1}{2} \times \sin \alpha}{AB \times AD \times \frac{1}{2} \times \sin \alpha} = \frac{AC \times \frac{1}{2}}{AB \times \frac{1}{2}} \Rightarrow \frac{AB}{AC} = \sqrt{2}$

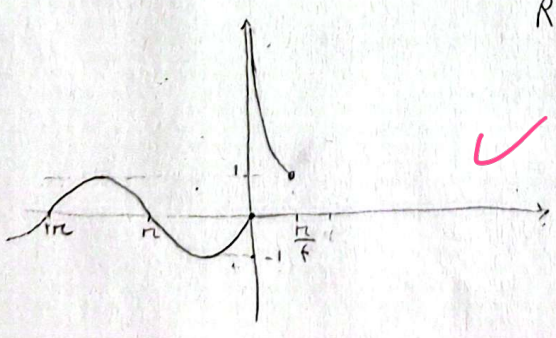
3   $\angle A = \frac{1}{2} \Rightarrow \hat{A} = 90^\circ$   
 $\angle B = \frac{1}{2} \Rightarrow \hat{B} = 180^\circ$   
 $\hat{O}_1 = \hat{B} - \hat{A} = 90^\circ \Rightarrow S_{AOB} = \frac{OA \times OB}{2} = \frac{1}{2}$   
 $\hat{O}_2 = \hat{A} + 90^\circ = 180^\circ \Rightarrow S_{AOC} = \frac{OA \times OC}{2} \times \sin 180^\circ = \frac{1}{2}$   
 $\hat{O}_3 = 90^\circ + 180^\circ - \hat{B} = 180^\circ \Rightarrow S_{BOC} = \frac{OB \times OC}{2} \times \sin 180^\circ = \frac{1}{2}$   
 $AB = \sqrt{OA^2 + OB^2 - 2OA \cdot OB \cdot \cos \hat{O}_1} = \sqrt{2}$   
 $BC = \sqrt{OB^2 + OC^2 - 2OB \cdot OC \cdot \cos \hat{O}_3} = \sqrt{2}$   
 $AC = \sqrt{OA^2 + OC^2 - 2OA \cdot OC \cdot \cos \hat{O}_2} = \sqrt{2}$   
 $P_{ABC} = \sqrt{2} + \sqrt{2} + \sqrt{2} = 3\sqrt{2}$

4   $S_{ABC} = \frac{1}{2} AB \times AC \times \sin \hat{A} = \frac{1}{2} \times 3 \times 4 \times \sin 90^\circ = 6$

5  $\alpha - \cos \alpha = 0 \Rightarrow \cos \alpha = \alpha \Rightarrow 2 \cos \alpha - \cos \alpha - \sin^2 \alpha (2 \sin^2 \alpha - 1) = \cos \alpha (2 \cos^2 \alpha - 1) - \sin^2 \alpha (-\cos \alpha) = \cos \alpha (\cos^2 \alpha + \sin^2 \alpha) = \cos \alpha = 1 \Rightarrow \sin \alpha = \sqrt{1 - \cos^2 \alpha} = 0$

6  $y = -2 \sin \pi \cos \pi + 2 = -\sin \pi + 2$   $T = \frac{2\pi}{\pi} = 2$   $[-2, 2]$   $\max = |-1| + 2 = 1$   $\min = -|-1| + 2 = 1$

7  $y = 2 \cos(\pi + \frac{1}{\pi})\pi + 1 = -2 \sin \pi + 1$   $T = \frac{2\pi}{\pi} = 2$   $[-2, 2]$   $\max = |-2| + 1 = -1$   $\min = -|-2| + 1 = -1$

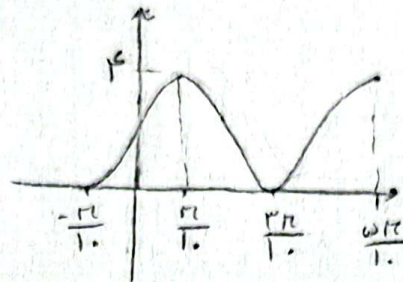
8  $R_f = [-1, +\infty)$   
 $\cot \pi = -\tan(\pi + \frac{\pi}{2})$   


$$f(n) = a + \underbrace{b \sin(n) \cos(n)}_{\frac{b}{f}} \cos(f(n)) = a + \frac{b}{f} \sin f(n)$$

$$T = \frac{R}{P} - \frac{R}{I_0} = \frac{PR}{\omega} = \frac{PR}{f|C|} \Rightarrow |C| = \frac{\omega}{f} \Rightarrow X = \frac{\omega}{f}$$

$$\frac{b}{r} \sin(r(n))$$

$$\left. \begin{aligned} \max = r = a + \frac{|b|}{r} \\ \min = 0 = a - \frac{|b|}{r} \end{aligned} \right\} \Rightarrow a = r, |b| = r \Rightarrow b = r$$



بالا در دکن تابع متوجه می شوم که حدود آبی ۵۰ لایه جمع می شود است  
در ۱۶۵ م و در آنجا به طبق فرخ ۱۶۵ است پس  
۱۶۵ م می شود

$$f\left(\frac{\pi}{r}\right) = r + \frac{b}{r} \sin\left(\omega \frac{\pi}{r}\right) = r + \frac{b}{r} = r \Rightarrow \underline{b = 0}$$

$$\rightarrow \frac{bc}{a} = \frac{1 \times \frac{3}{4}}{2} = \boxed{\frac{3}{8}}$$

$$T = \pi = \frac{2\pi}{|b|} \Rightarrow \underline{|b| = 2}$$

$$a \neq 0 \Rightarrow a = -3$$

$$\begin{aligned} \max &= Y = |a| + C \\ \min &= -t = -|a| + C \end{aligned} \Rightarrow |a| = 3, \underline{C = -1}$$

$$f(n) = -r \cos 2n - 1 \Rightarrow f(\alpha) = -r \cos 2\alpha - 1 = 0 \Rightarrow \cos 2\alpha = -\frac{1}{r}$$

$$|\tan r_d| = \sqrt{\frac{1}{\cos^2 r_d} - 1} = \boxed{\sqrt{2}}$$

$T > 0 \Rightarrow f(n) = f(n \pm T) \Rightarrow f(-j\omega) = f(+j\omega - 12(2\pi)) = f(+j\omega)$

$\text{خطای خطی} : \begin{pmatrix} 0, 1 \\ r, 0 \end{pmatrix} \Rightarrow m = \frac{0-1}{r-0} = -\frac{1}{r} \Rightarrow \hat{y} = -\frac{1}{r}x + 1 \Rightarrow \boxed{f(1/\omega) = \frac{1}{r}}$