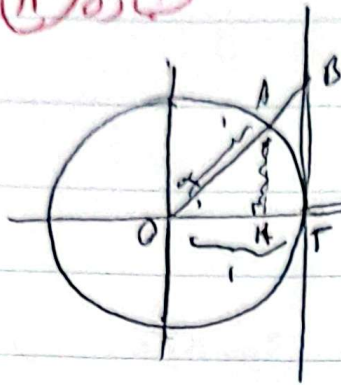


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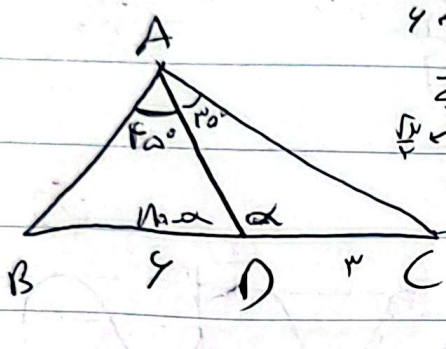


منه $\sin \alpha = \frac{OT}{OB}$, $BT = \tan \alpha$, $OT = \cos \alpha$

منه $\sin \alpha = \frac{OT}{OB}$ (1)

$$OT^2 + BT^2 = OB^2 = 1^2 \Rightarrow \cos^2 \alpha + \sin^2 \alpha = 1$$

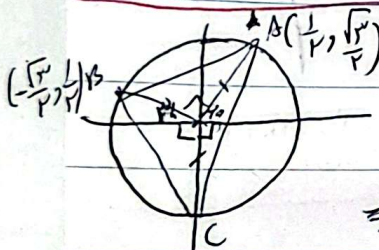
$$\Rightarrow OB = \frac{1}{\sin \alpha} \Rightarrow OB = \frac{1}{\sin \alpha} \Rightarrow OB = AB + OA = AB + 1 \Rightarrow AB = \frac{1}{\sin \alpha} - 1$$



$$\frac{BD}{\sin \alpha} = \frac{AB}{\sin(180^\circ - \alpha)} \Rightarrow \frac{BD}{\sin \alpha} = \frac{AB}{\sin \alpha}$$

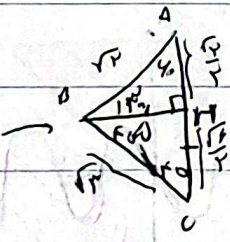
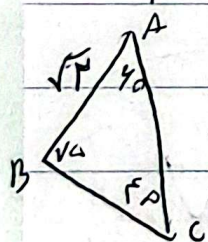
$$\frac{DC}{\sin \alpha} = \frac{AC}{\sin \alpha} \Rightarrow DC = \frac{AC}{\sin \alpha}$$

$$\frac{AB}{\sin \alpha} = \frac{AB}{\sin \alpha} \Rightarrow \frac{AB}{\sin \alpha} = \frac{AB}{\sin \alpha} \Rightarrow \frac{AB}{\sin \alpha} = \frac{AB}{\sin \alpha}$$



$$\angle A = 180^\circ - (45^\circ + 45^\circ) = 90^\circ \Rightarrow \angle A = 90^\circ \Rightarrow \angle A = 90^\circ$$

$$\Rightarrow AB = \sqrt{2}, \angle A = 90^\circ \Rightarrow \angle A = 90^\circ \Rightarrow \angle A = 90^\circ$$



$$\frac{AD}{\sin \alpha} = \frac{AB}{\sin \alpha} \Rightarrow AD = \frac{AB}{\sin \alpha}$$

$$\frac{AD}{\sin \alpha} = \frac{AC}{\sin \alpha} \Rightarrow AD = \frac{AC}{\sin \alpha}$$

$$BC = \frac{1}{\sin \alpha} = \frac{1}{\sin \alpha} \Rightarrow BC = \frac{1}{\sin \alpha}$$

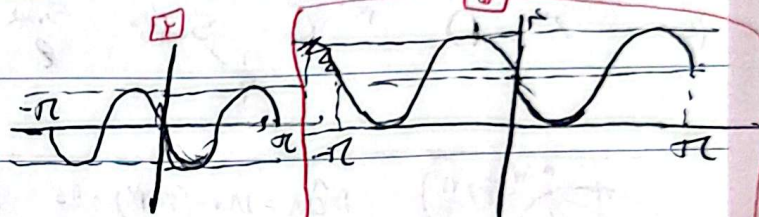
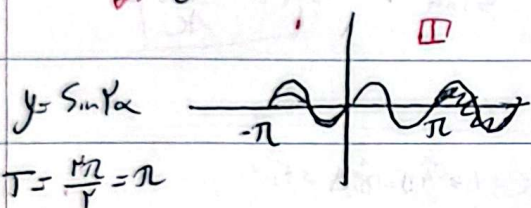
$$S_{ABC} = \frac{1}{2} \times AC \times BC \times \sin \alpha = \frac{1}{2} \times \frac{1}{\sin \alpha} \times \frac{1}{\sin \alpha} \times \sin \alpha = \frac{1}{2}$$

① $\Rightarrow$ $\cos \alpha, \sin \alpha$ را فرض کنیم تا با هم مساوی شود

$$P \cos^2 \alpha - \cos^2 \alpha - \sin^2 \alpha (P \sin^2 \alpha - 1) = P \cos^2 \alpha (P \cos^2 \alpha - 1) - \sin^2 \alpha (P \sin^2 \alpha - 1)$$

$$= \cos^2 \alpha (\cos^2 \alpha + \sin^2 \alpha) = 1 \Rightarrow \oplus \Rightarrow \boxed{\sin^2 \alpha = a}$$

الف) $y = -P \sin \alpha \cos \alpha + P = -P \sin^2 \alpha + P$



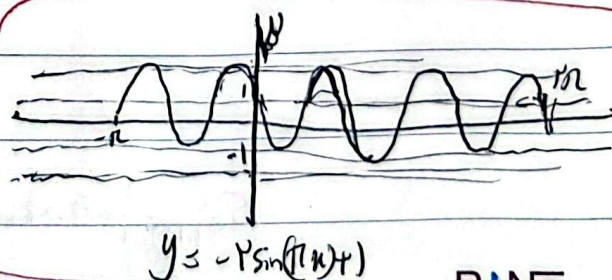
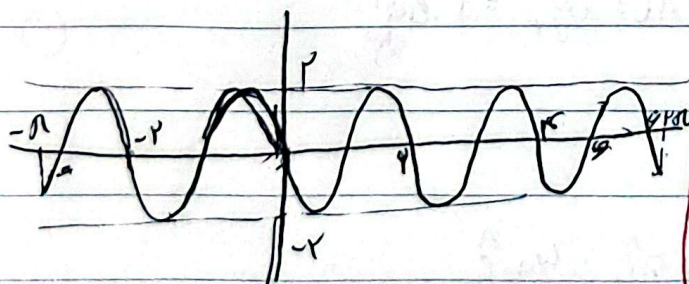
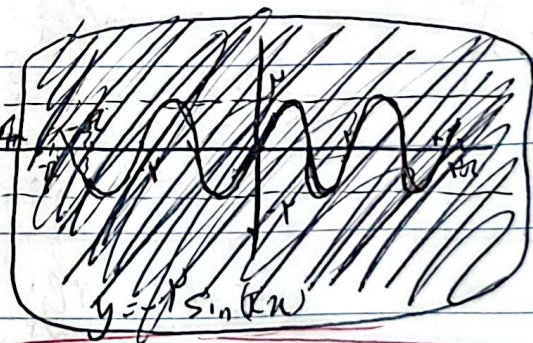
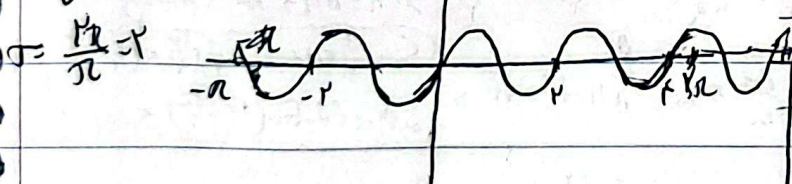
و اما اینجا بعضی وقتها نیست به صورت

$y = -P \sin^2 \alpha + P$

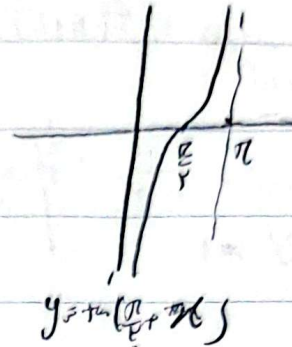
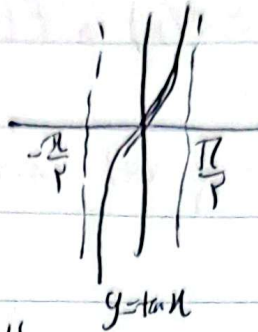
یا با ضرب به بالا

ب) $P \cos(n + \frac{1}{2})\pi + 1 = P \cos(\pi n + \frac{\pi}{2}) + 1 = -P \sin(\pi n) + 1$

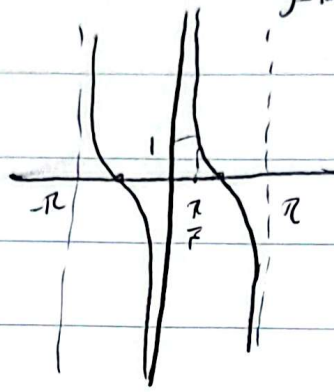
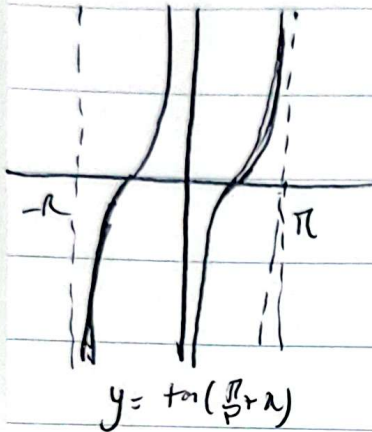
$y = \sin(\pi n)$



$$f(x) = \begin{cases} \tan(\frac{\pi}{2} - x) & 0 < x < \frac{\pi}{2} \\ \sin x & x \leq 0 \end{cases}$$

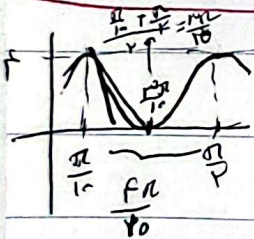


✓



$$y = \tan(\frac{\pi}{2} - x)$$

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



$$f(x) = a + b \sin(c x) \cos(c x) = a + \frac{b}{2} \sin(2 c x)$$

$$f(\frac{\pi}{2}) = f \Rightarrow a + \frac{b}{2} \sin(\frac{\pi}{2}) = f \Rightarrow a = f$$

$$T = \frac{\pi/2}{1/c} = \frac{f\pi}{10} \Rightarrow f/c = 2 \Rightarrow |c| = \frac{4}{\pi} \Rightarrow c = \frac{4}{\pi}$$

✗

$$f(x) = f + \frac{b}{2} \sin(2 c x) \Rightarrow f(\frac{\pi}{10}) = 0 \Rightarrow f + \frac{b}{2} \sin(2(\frac{\pi}{10})) = 0 \Rightarrow \sin(\frac{\pi}{5}) = -\frac{1}{b}$$

$$\Rightarrow b = 1 \Rightarrow \frac{bc}{a} = \frac{1 \times \frac{4}{\pi}}{f} = 2$$

$$\begin{aligned} \max &= |a| + c = 2 \Rightarrow c = 1, |a| = 1 \Rightarrow a = 1 \\ \min &= -|a| + c = -1 \Rightarrow c = 1, |a| = 1 \Rightarrow a = -1 \end{aligned}$$

$$\frac{\pi/2}{1/b} = \pi \Rightarrow |b| = 2 \Rightarrow b = 2$$

$$f(x) = 2 \cos(2x) - 1$$

9

$$0 = f(x) \Rightarrow 2 \cos^2 x - 1 = 0 \Rightarrow \cos^2 x = \frac{1}{2} \Rightarrow \cos x = \frac{1}{\sqrt{2}} \Rightarrow \frac{1}{\cos x} = \sqrt{2} \Rightarrow \tan^2 x = 1 \Rightarrow \tan x = \pm 1$$

تقریباً تابع باشد : $f(n+kT) = f(n) \Rightarrow f(\frac{2}{3}) = f(-12(\frac{2}{3}) + 10) = f(10)$
 نامیب (10)

$$\text{شیب طالع دکل} = \frac{1-0}{0-2} = -\frac{1}{2} \Rightarrow y = -\frac{1}{2}x + 1 \Rightarrow f(\frac{2}{3}) = -\frac{1}{2}(\frac{2}{3}) + 1 = \boxed{\frac{1}{3}}$$

مرفی از بعد = 1