

$$\text{b) } y'' - u = 2u' \quad y'' = 2u' + u, \quad = 2u' + u \rightarrow \begin{pmatrix} u_1, y_1 \\ u_2, y_2 \end{pmatrix} \Rightarrow u_1 = u_2 \Rightarrow y_1 = y_2 = \boxed{y_1 = y_2}$$

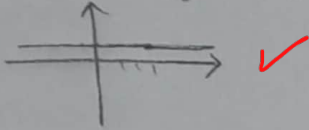
ب) $|y| + u^2 = u + 2 \xrightarrow{u=0} |y| + 0 = 0 + 2 \Rightarrow |y| = 2 \Rightarrow y = \pm 2$ بمعنى

نقطه بینه تابع هست $\sqrt{x-1} + |y-2| = 0 \Rightarrow \sqrt{x-1} = 0 \Rightarrow x=1$ و $|y-2| = 0 \Rightarrow y=2$

د) $u_0 = \cos y \xrightarrow{\text{مشتق}} u=0 \Rightarrow \cos y = 0 \Rightarrow y = 90, 270$ تابع نیست

تابع ثابت = $y = k$

$$|1^w| = \overbrace{2^w}^w, y=1 \Rightarrow f(2^w)=1$$



الف) تابع ثابت گذرا از نقطه ۳

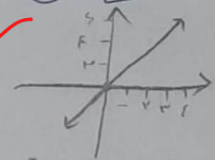
$$y = ax + b \rightarrow \textcircled{0}$$

$$\Rightarrow a = r \Rightarrow$$

(ب) تابع قطعی گذرا از نقطه ۶ | ۲ | با شیب ۲ واحد

$$y - \bar{y} = r(x - \bar{x})$$

$$y \cdot r = r_2 - r = \boxed{y = r_2}$$



تابع همانی $\gamma = \text{id}$

(الف)

$8a + 1b$ less

$$y = ax + b$$

$$\Rightarrow a=1, b=0 \Rightarrow a+rb = 1 + r(0) = 1 \quad \square \quad \checkmark$$

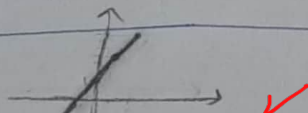
$$u = au + b$$

(الف) اگر تابع $y = ax + b$ به تابع هانی باشد (ب) $\Rightarrow y = (x)^2 - f(x) + b \Rightarrow y = -x + b$
 $\min |r| \Rightarrow x = -\frac{b}{ra} = r \Rightarrow \frac{-b}{r} = r \Rightarrow \boxed{b = -f} \Rightarrow y = (x)^2 - f(x) + b \Rightarrow y = -x + b$
 $1 = -f + b \Rightarrow b = 1 + f$

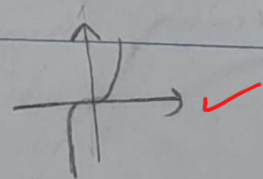
✓ $a + \gamma b = -\varepsilon + \gamma(\omega) = \boxed{4}$

(ب) اگر دینوی (a, b, c) و مضاعفات نقطه‌ی مینیمم تابع $z = 2x + y$ باشد

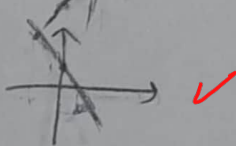
الف) $y = 2x + 1$



$$y = 2$$



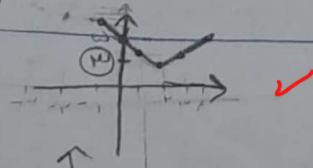
ب) $y = -3x + 1$



c) $y = x^5$



$$y = |x - r| + r$$



$$y = -|x + 4| + 1$$



الف) $y = \frac{x^2 + 1}{x^2 - 1}$ $x^2 - 1 \neq 0 \Rightarrow x \neq \pm 1$ $D_f = \mathbb{R} - \{0, \pm 1\}$

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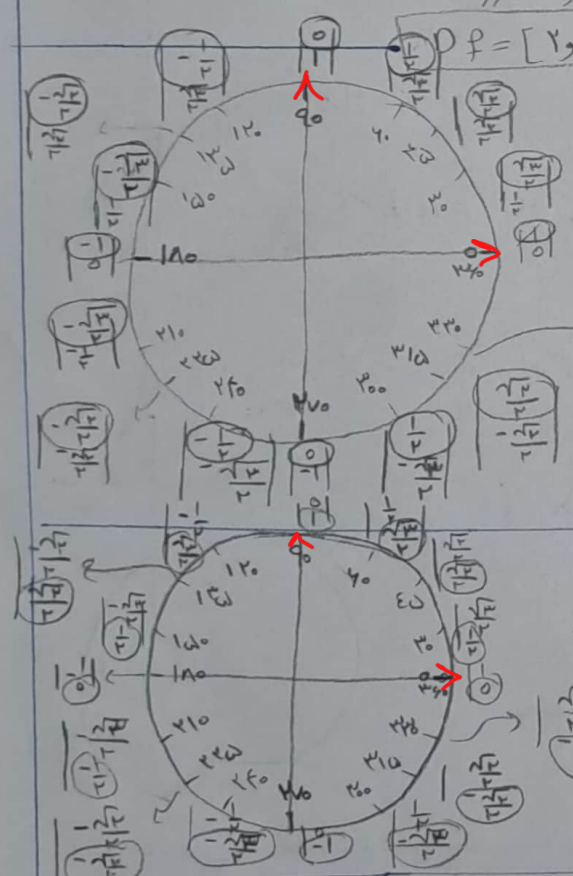
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$\cos 0 = 1$ $\cos 30 = \frac{\sqrt{3}}{2}$ $\cos 45 = \frac{\sqrt{2}}{2}$
 $\cos 60 = \frac{1}{2}$ $\cos 90 = 0$ $\cos 120 = -\frac{1}{2}$
 $\cos 135 = -\frac{\sqrt{2}}{2}$ $\cos 150 = -\frac{\sqrt{3}}{2}$ $\cos 180 = -1$
 $\cos 210 = -\frac{\sqrt{3}}{2}$ $\cos 225 = -\frac{\sqrt{2}}{2}$
 $\cos 240 = -\frac{1}{2}$ $\cos 270 = 0$ $\cos 300 = \frac{1}{2}$
 $\cos 315 = \frac{\sqrt{2}}{2}$ $\cos 360 = 1$

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الف) $\cos \frac{2\pi}{3} \rightarrow \frac{2\pi}{3} = 120^\circ \Rightarrow \cos \frac{2\pi}{3} = -\frac{1}{2}$ $\frac{1}{2} = \sin \frac{\pi}{6}$ $\frac{\sqrt{3}}{2} = \sin \frac{\pi}{3}$

ب) $\cos \frac{11\pi}{6} \rightarrow \frac{11\pi}{6} = 330^\circ \Rightarrow \cos \frac{11\pi}{6} = \frac{\sqrt{3}}{2}$ $-\frac{\sqrt{3}}{2} = \sin \frac{5\pi}{6}$ $\frac{1}{2} = \sin \frac{\pi}{6}$