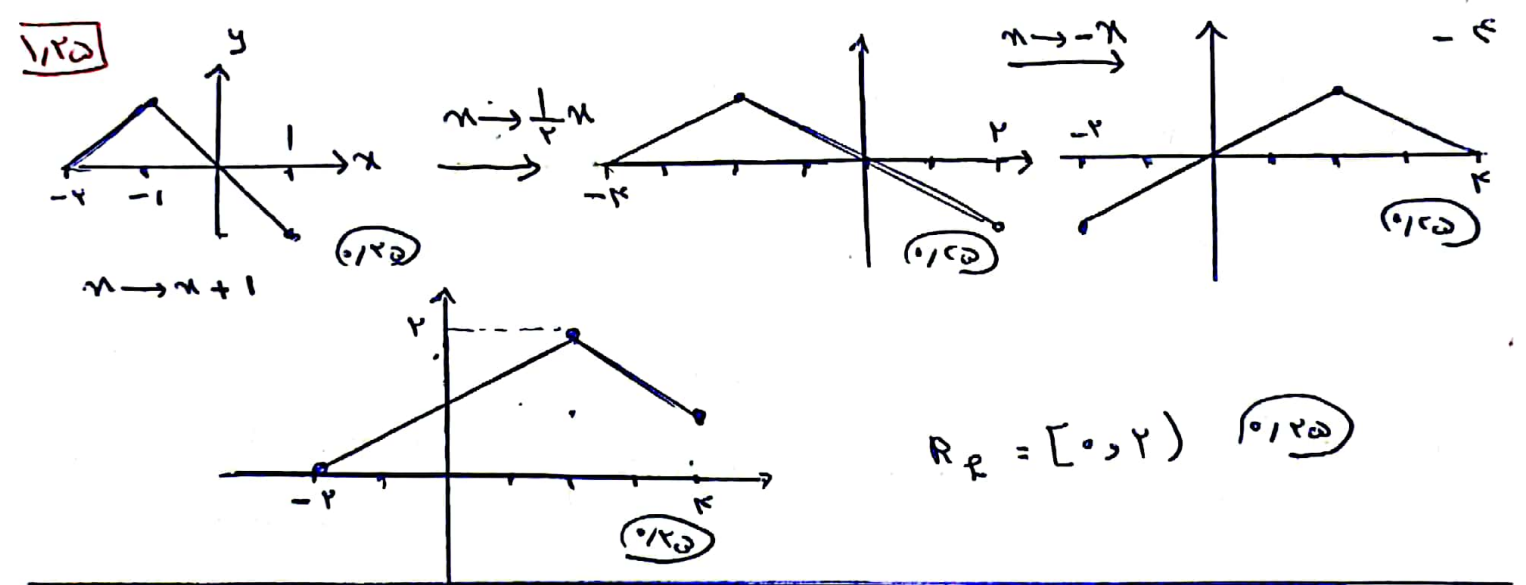


۱- الف - نادرست ب - نادرست ج - درست د - نادرست

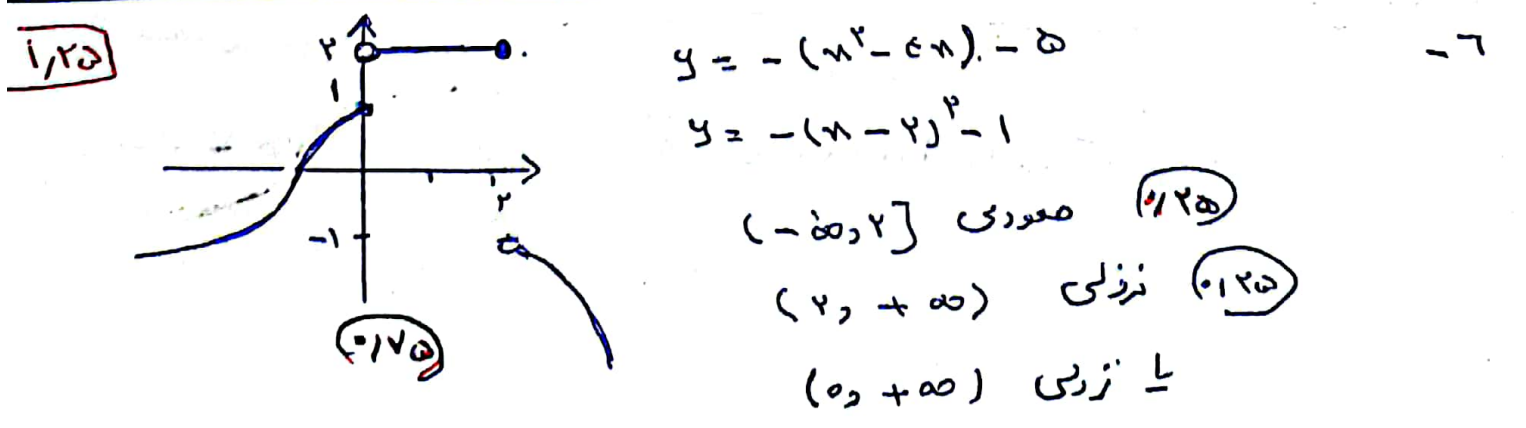
۲- الف - (-۲-۱) ب - ۱- ج - $\frac{\sqrt{3}}{2}$ د - صفر

۳- الف) $n-1 \geq 3-n \Rightarrow 2n \geq 4 \Rightarrow n \geq 2$
 $n-1 > 0 \rightarrow n > 1$
 $3-n > 0 \rightarrow n < 3$
 $n \rightarrow n \in [2, 3)$ (نیزه ۴)

ب- $\lim_{n \rightarrow +\infty} \frac{\sin 2n + [-n]}{n} = \lim_{n \rightarrow +\infty} \frac{\sin 2n - 1}{n} = \frac{-1}{+\infty} = -\infty$ (نیزه ۳)



۵- $y = -(x-2)^n + h \xrightarrow{(2,0)} 0 = -1 + h \Rightarrow h = 1$
 $y = -(x-2)^n + 1 = -x^n + 7x^2 - 12x + 9$
 $\begin{cases} a = 7 \\ b = -12 \\ c = 9 \end{cases}$



1] $p(x) = a$ (1/20) $f(x) = 2p(x) - 3p(-1) + 9k + a$ (الف - 7)

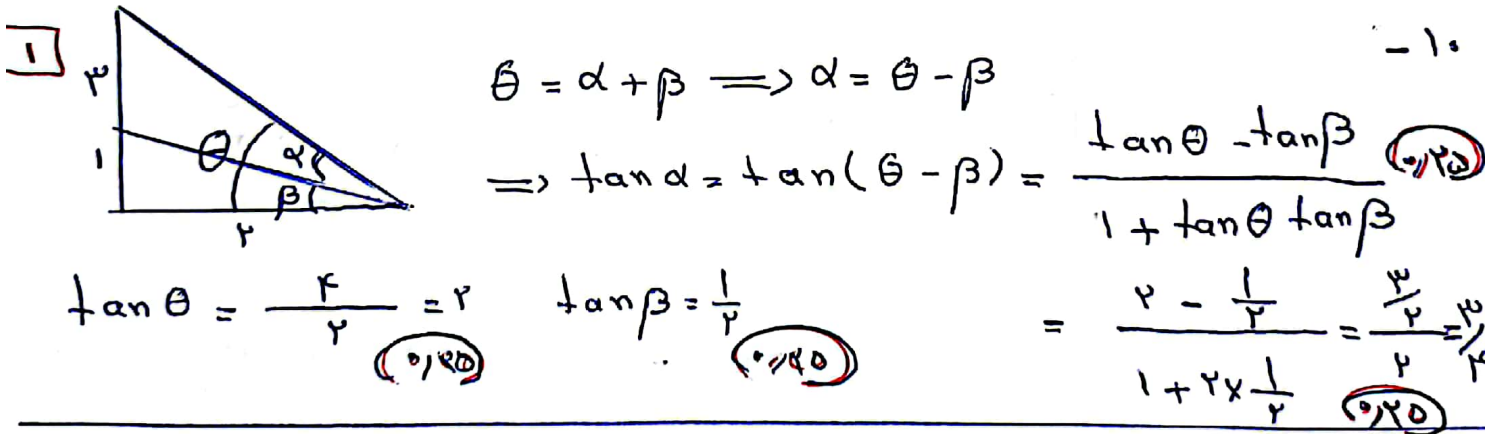
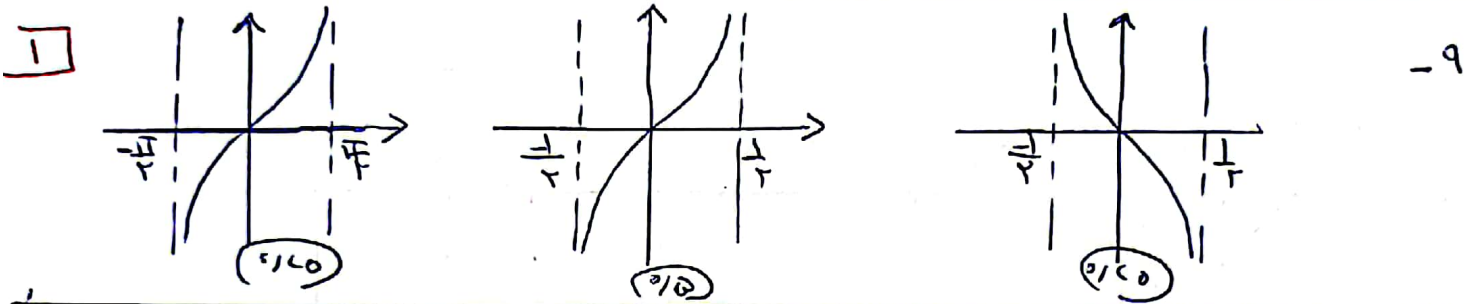
$p(-1) = -1$ (1/20) $= 1 + 3 + 9k + a \rightarrow 9k = -11 \rightarrow k = -\frac{11}{9}$

(1/20) $x^2 + 3x = (x+2)(x^2 - 2x^k + 5x^l - 1x + 17)$ (ب - 7)

(1/20) $\frac{y}{r} T = \pi \Rightarrow T = \frac{y\pi}{r}$ (1/20) $T = \frac{y\pi}{|b|} = \frac{y\pi}{r} \Rightarrow |b| = r \rightarrow b = \pm r$ (1/20) - 1

$c = \frac{\max + \min}{y} = \frac{5 + (-1)}{y} = \frac{4}{y}$ (1/20)

$|a| = \frac{\max - \min}{y} = \frac{5 - 1}{y} = \frac{4}{y}$ (1/20) $\alpha = \frac{-b}{r}$ (1/20)



$Y \cos^2 x - 1 - \sin x - 1 = 0 \Rightarrow Y \cos^2 x - \sin x - 2 = 0$ (الف - 11)

$Y(1 - \sin^2 x) - \sin x - 2 = 0 \rightarrow -Y \sin^2 x - \sin x = 0 \Rightarrow$

$-\sin x (Y \sin x + 1) = 0$

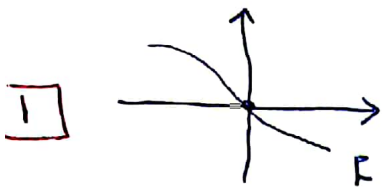
$\sin x = 0 \rightarrow x = k\pi, k \in \mathbb{Z}$

$Y \sin x + 1 = 0 \rightarrow \sin x = -\frac{1}{Y}$

(1/20) $\sin x = -\frac{1}{Y} \rightarrow x = -\frac{\pi}{6} + 2k\pi$ and $x = \frac{7\pi}{6} + 2k\pi$ (1/20)

$\tan \alpha x = \tan x \Rightarrow \alpha x = k\pi + x \Rightarrow x = \frac{k\pi}{\alpha - 1}$ (ب - 11)

(1/20) به جز xهایی که باقی مانده تنسیم آنها برابر 3 برابر 2 می شود (1/20)



1

كلية صابان ٢

$$\lim_{x \rightarrow 0^+} \frac{x-2}{f(x)} = \frac{-2}{0^-} = +\infty \quad (٧٥)$$

$$\lim_{x \rightarrow 0^-} \frac{x-2}{f(x)} = \frac{-2}{0^+} = -\infty \quad (٧٥)$$

٣٠٠

1

$$\lim_{x \rightarrow (-1)^-} f(x) = -\infty \xrightarrow{x=-1} a + 2a + b = 0 \rightarrow \boxed{b = -3a} \quad (١٢٥)$$

$$\lim_{x \rightarrow (-1)^-} \frac{x}{ax^2 - 2ax - 3a} = \lim_{x \rightarrow (-1)^-} \frac{x}{a(x^2 - 2x - 3)} = \lim_{x \rightarrow (-1)^-} \frac{x}{a(x-3)(x+1)} \quad (٧٢٥)$$

$$= \frac{-1}{a \times (-4) \times 0^-} = -\infty \Rightarrow \frac{-1}{a \times 0^+} = -\infty \rightarrow a > 0 \quad (٧٢٥)$$

٢

$$١) \lim_{x \rightarrow (\frac{\pi}{2})^+} \frac{\cos x}{x \sin x - 1} = \frac{\frac{-\sqrt{2}}{2}}{x(\frac{1}{x}) - 1} = \frac{\frac{-\sqrt{2}}{2}}{0^-} = +\infty \quad (٧٥) \quad -١٤$$

$$٢) \lim_{x \rightarrow -\infty} \frac{x - |x|}{x} = \lim_{x \rightarrow -\infty} \frac{2x}{x} = 2 \quad (٧٢٥)$$

$$٣) \lim_{x \rightarrow 0^+} \frac{x-1}{x(x^2+1)} = \frac{-1}{0^+} = -\infty \quad (٧٢٥)$$

$$٤) \lim_{x \rightarrow 1^-} \frac{x(x-1)}{(x-1)(x^2+x-2)} = \lim_{x \rightarrow 1^-} \frac{x}{(x+2)(x-1)} = \frac{x}{x \times 0^-} = -\infty \quad (٧٢٥)$$

١٢٥

$$\lim_{x \rightarrow \infty} \frac{x^2 - 3x + 2}{x - x^2} = -1 \rightarrow y = -1 \text{ صواب انقى } (٧٢٥) \quad -١٥$$

$$\lim_{x \rightarrow 2} \frac{x^2 - 3x + 2}{x - x^2} = \lim_{x \rightarrow 2} \frac{(x-1)(x-2)}{(x-2)(2+x)} = \frac{1}{4} \quad (٧٢٥)$$

$x^2 - x = 0 \rightarrow x = \pm 2$

$x = 2$ صواب تمام بيت

$x = -2$ صواب تمام بيت

