۱۹۸۵ سه امتحانی ☆

۱) $\lim_{x \to (\frac{1}{2})^-} [2x] + a[\frac{x+2}{2}]$ (۱/۵)

$x \to -2^- \longrightarrow -4 + a[\frac{-2+2}{2}] \longrightarrow -4 + a$

$x \to -2^+ \longrightarrow -4 + 0 \longrightarrow -4$

$-4 + a = -4$

$a = 0$

$[\frac{0}{2}] = [\frac{1}{2}] = 0$ صورت سوال را با دقت بخوان!

۲) $\lim_{x \to (\frac{\pi}{6})^-} [2\sin x - 1]$

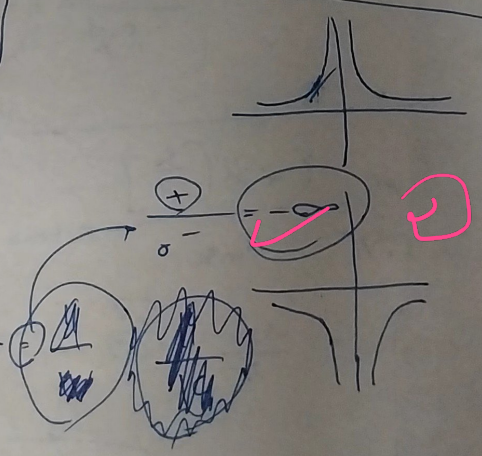
$[1^- - 1] = -1$ ✓

۳) $\lim_{x \to \frac{1}{2}} [8x^3 - x]$

$[-1 + \frac{1}{2}] = -1$ ✓ $(\frac{1}{2})^3 = \frac{1}{8}$ ✓ $(8 \times \frac{1}{8}) = 1$ ✓

۴) $\lim_{x \to (\frac{1}{2})^-} \frac{\log x - a + [\frac{3}{x^2}]}{\log x - [-\frac{2}{x^2}]}$

$\frac{a - a + [12]}{-8 + 9}$



Galaxy A23

1)

$$\lim_{x \to 1} \frac{b\sqrt{2+\sqrt{2x}} - 2b}{\frac{b}{1}x - b}$$

$$\lim_{x \to 1} \frac{\frac{1}{2\sqrt{2+\sqrt{2x}}} \cdot \frac{1}{2\sqrt{2x}} \cdot 2}{\frac{b}{1}}$$

$$= \frac{\frac{1}{2\sqrt{3}} \cdot \frac{1}{2}}{\frac{b}{1}} = \frac{1}{12b}$$

$$\frac{1}{12b} = \frac{1}{24}$$

$$12b = 24$$

$$b = 2$$

$$\lambda a = b$$

$$\lambda = 2$$

حل تمرین

(۵) $\lim_{x \to 1^+} \frac{\sin^2 \pi x}{[x] + \cos \pi x} = \frac{\sin^2 \pi x}{1 + \cos \pi x} = \frac{1 - \cos^2 \pi x}{1 + \cos \pi x} = 1 - \cos \pi x = 2$ ✓

(۶) $\lim_{x \to -1} \frac{\sqrt{x+2} - \sqrt{x+5}}{1 + \sqrt[3]{x}} \Rightarrow \frac{\frac{1}{2\sqrt{x+2}} - \frac{1}{2\sqrt{x+5}}}{\frac{1}{3\sqrt[3]{x^2}}} = \frac{\frac{-1}{2}}{\frac{1}{3}} = -\frac{3}{2}$ ✓

(۷) $\lim_{x \to 1} \frac{2x - \sqrt{3x+5} + 2}{2x - \sqrt{x+3}} \quad \frac{2 - \frac{1}{2\sqrt{x+3}}}{2 - \frac{2}{2\sqrt{x+3}}} = \frac{-\frac{3}{8}}{\frac{5}{8}} = -\frac{3}{5}$ ✓

(۸) $\lim_{x \to 0} \frac{\sqrt{ax+b} - 2}{x} = \frac{1}{4} \quad \frac{\frac{a}{2\sqrt{ax+b}}}{1} = \frac{1}{4}$

$\frac{a}{4} = \frac{1}{4} \Rightarrow a = 1$

$\frac{\sqrt{b} - 2}{0} = \frac{1}{2} \Rightarrow \sqrt{b} = 2 \Rightarrow b = 4$

$a - b = -3$

(۹) $\lim_{x \to -2\pi^+} \frac{4 + x\left[\frac{x}{\pi}\right]}{\sin x} = +\infty$

$\frac{4 - 2\pi}{0^-} \Rightarrow 2\pi < 4 < 3\pi \Rightarrow [-4] = -2$

Galaxy A23