

حد خارج باید $\neq 0$ شود $\Rightarrow 2(2) - 5 = -1 < 0$

$\Rightarrow (x-2)^2 = x^2 + ax + b \Rightarrow a = -4, b = 4$ ✓
 $a+b=0$ ✓

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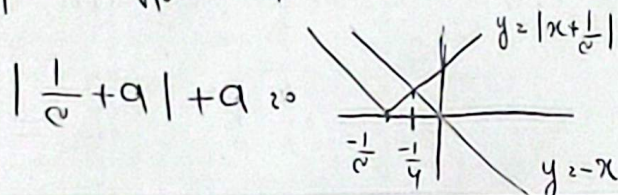
حد خارج باید $\neq 0$ شود $\Rightarrow \sqrt[3]{4} > 0$

$(x - \sqrt[3]{4})^2 = x^2 + ax + b \Rightarrow a = 2\sqrt[3]{4}, b = \sqrt[3]{16}$

$\left[\frac{b}{a}\right], \left[\frac{\sqrt[3]{16}}{2\sqrt[3]{4}}\right], \left[\frac{\sqrt[3]{4}}{-2}\right] = \left[\sqrt[3]{\frac{1}{4}}\right] = 0$ ↗ $a = -2\sqrt[3]{4}$ (15)

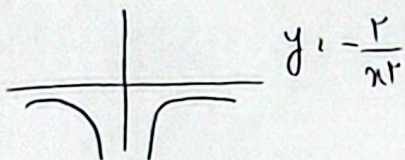
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خرج باید به ازای $x = \frac{1}{\sqrt{e}}$ صفر شود $\Rightarrow \left|\frac{\sqrt{e}}{e} \times \frac{1}{\sqrt{e}} + a\right| + a = 0$ (۲)

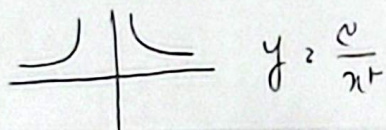


$\Rightarrow a = -\frac{1}{4} \Rightarrow [a] = -1$ ✓

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$\lim_{x \rightarrow (-\frac{1}{r})^+} \frac{14x - [(-1)^-]}{25x + [12^+]} = \frac{14x+9}{25x+12} = +\infty$ ✓



(۲)

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$\lim_{x \rightarrow 2^+} \frac{x^2 - 4}{x^2 - [x^2]} = \frac{x^2 - 4}{x^2 - 4} = \frac{x+2}{x^2 + 2x + 4} = \frac{4}{12} = \frac{1}{3}$ ✓

(۲)

۵

$$\lim_{x \rightarrow -1} \frac{x^2 + 10x + 14}{12 + 4\sqrt{x}} \stackrel{\text{Hop}}{=} \lim_{x \rightarrow -1} \frac{1x + 10}{4x \cdot \frac{1}{\sqrt{x}}} = -12 \quad \checkmark$$

6

$$1 - \cos x \sim \frac{x^2}{2} \quad \lim_{x \rightarrow 0^-} \frac{\sqrt{1+x} - \sqrt{1-x}}{\sqrt{\frac{x^2}{2}}} \times \frac{\sqrt{1+x}}{\sqrt{1+x}} = \frac{1x}{-2x \sqrt{\frac{1}{2}} \times \sqrt{2}} = -1 \quad \checkmark$$

7

$$K = -1 \iff K + \cos(0) = 0 \iff \cos(0) = 0 \iff \checkmark$$

$$\lim_{x \rightarrow 0} \frac{\cos(\sqrt{a}x) - 1}{-x^2} = \frac{1 - \cos(\sqrt{a}x)}{x^2} = \frac{\frac{ax^2}{2}}{x^2} = \frac{a}{2} = 2 \quad a = 4 \quad \checkmark$$

$$\frac{a}{K} = \frac{4}{-1} = -4 \quad \checkmark$$

$$\lim_{x \rightarrow (\frac{1}{9})^+} \frac{\sqrt{x - \frac{1}{9}}}{\sqrt{x^2 - 9a^2}} + \lim_{x \rightarrow (\frac{1}{9})^+} \frac{\sqrt{x} - \sqrt{\frac{1}{9}}}{\sqrt{x^2 - 9a^2}} = \lim_{x \rightarrow \frac{1}{9}^+} \frac{1}{\sqrt{x + \frac{1}{9}}} + \lim_{x \rightarrow \frac{1}{9}^+} \frac{\sqrt{x} - \sqrt{\frac{1}{9}}}{\sqrt{x^2 - 9a^2}} \times \frac{\sqrt{x} + \sqrt{\frac{1}{9}}}{\sqrt{x} + \sqrt{\frac{1}{9}}}$$

$$\frac{1}{\sqrt{4a}} + \lim_{x \rightarrow \frac{1}{9}^+} \frac{\sqrt{x - \frac{1}{9}}}{(\sqrt{x + \frac{1}{9}})(\sqrt{x} + \sqrt{\frac{1}{9}})} = \frac{1}{\sqrt{4a}} \quad \checkmark$$

$$\lim_{x \rightarrow -1} \frac{1 - K[x]}{x^2 - 1} \quad \begin{matrix} (-1)^+ \rightarrow \lim_{x \rightarrow (-1)^+} \frac{1+K}{0^-} = -\infty \Rightarrow 1+K > 0 \Rightarrow K > -1 \\ (-1)^- \rightarrow \lim_{x \rightarrow (-1)^-} \frac{1+K}{0^+} = -\infty \Rightarrow 1+K < 0 \Rightarrow K < -\frac{1}{2} \end{matrix}$$

$$-1 < K < -\frac{1}{2} \Rightarrow -\pi < K\pi < -\frac{\pi}{2} \Rightarrow -1 < \cos K\pi < 0 \quad \checkmark$$

10