B

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نام و نام خانوادگی: زهرا سادات حسینی با لقب مشتاق تلاش: ۲۴ کلاس باز کاوش جنت

$y = x^2 \begin{cases} x=1 \to y=1 \\ x=3 \to y=9 \end{cases} \to f(x) = 3^{Ax+B} \begin{cases} \to 1 = 3^{A+B} \\ \to 9 = 3^{3A+B} \end{cases}$ (۱)

$$\begin{cases} 3A+B=2 \\ -A-B=0 \end{cases} \to 2A=2 \to A=1 \quad B=-1$$

$f(x) = 3^{x-1} \to x=0 \to f(0) = \frac{1}{3}$ (۲)

$y = ?$

$2^{2x} \times 2^3 = (2^x)^2 + 15 \to 2^x = t \to 8t = t^2 + 15 \to (t-3)(t-5)=0$ (۳)

$t=3$ (۳) $\quad t=5$ (۵)

$2^x = 3 \to g_2^3 = x$

$2^x = 5 \to g_2^5 = x$ (۱)

$\xrightarrow{+} g_2^3 + g_2^5 = g_2^{15} \simeq 4$

$$(g_{11}^3)^2 + (g_{11}^{21} + g_{11}^{21} - g_{11}^3)(g_{11}^{21} + g_{11}^{11} + g_{11}^3)$$ (۴)

$$= (g_{11}^3)^2 + (2 - g_{11}^3)(2 + g_{11}^3) = (g_{11}^3)^2 + 4 - (g_{11}^3)^2$$ (۱)

$$= 4$$

$g^{(1-x)^2} + 3g^{(1-x)} = 5 \to 5g^{(1-x)} = 5 \to g^{(1-x)} = 1$ (۱)

$1-x = 10 \to x = -9 \to g_3^{-(-9)} = 2$

$(x^2+2x+4)(x-2) = 8 \to x^3 - 2x^2 + 2x^2 - 4x + 4x - 8 = 8$ (۵)

$x^3 = 16 \to x = \sqrt[3]{16}$

$g_{2\frac{1}{3}}^{16\frac{1}{3}} = 4$ (۱)

۹) $\lim_{x\to 2} \frac{(2-x)(x-2)^2}{1} = -10 \to (2-x)^3 = 10^3$

$2-x=10 \to x=-8$ ✓

$\lim_{\sqrt{2}}^{8} = 2\times 2 \lim_{2}^{2} = 8$

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۱۰) $\frac{3^{x^2}}{3^2} = 3^{6x} \to 3^{x^2} = 3^{6x} \times 3^2 \to x^2 = 6x+2 \to x^2-6x-2=0$ ✓

$x = \frac{6 \pm \sqrt{44}}{2} \to 2+\sqrt{9}=x \to \lim_{9}^{2+\sqrt{9}-2} = \frac{1}{2}$

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۸) $\lim_{18}^{1} \to \frac{\lim_{3}^{3\times 5}}{\lim_{3}^{3\times 2} + \lim_{3}^{2}} = \frac{3\times\frac{5}{8}}{\underbrace{2+\frac{5}{8}}_{\frac{21}{8}}} = \frac{\frac{15}{8}}{\frac{21}{8}} = \frac{15}{21} = \frac{5}{7}$ ✓

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۹) $\lim_{12}^{9} \to \frac{\lim_{4}^{3} + \lim_{4}^{2}}{\lim_{4}^{3} + \lim_{4}^{4}} = \frac{\%8+\%5}{\%8+1} = \frac{1,3}{1,8} = \frac{13}{18}$ ✓

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۱۰) $x=-1 \to a\lim^2 + b\lim^1 - a = 0 \to (a+b)\lim^2 = a$ ✓

$10^a = 2^a \times 2^b \to 2^b = 5^a \to 2^{\frac{b}{a}} = 5 \to \left(\sqrt{2}\right)^{\frac{b}{a}} = 2^{\frac{b}{a}\times 1/2}$

$2^a \times 5^a$

$\sqrt{5} = 5^{1/2}$