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بنیامین نوروزی - تکلیف ۲۴ - یازدهم پسر B

$$\left. \begin{aligned} m \Big|_1 \quad n \Big|_r &\rightarrow 1 = r^{A+B} / 9 = r^{2A+B} \\ -A=B &\leftarrow A+B=0 \quad 3A+B=2 \end{aligned} \right\} \begin{aligned} 2A=2 &\rightarrow A=1 \\ B &=-1 \end{aligned}$$

$f(x) = r^{2x-1}$ (۲) (۱)

$\Rightarrow f(0) = r^{-1} = \frac{1}{r}$ ✓

$$r^{2x+3} = r^x \times r^3 = r^{2x} + 1 \Rightarrow (r^x)^2 - 1(r^x) + 1 = 0 \rightarrow \frac{(t-2)}{(t-1)} = 0$$

$r^x = r \rightarrow \log_r r = x \Rightarrow r^x = r \rightarrow \log_r r = x \Rightarrow x_1 + x_2 = \log_r 1$ (۲) (۲)

$$\log_{r_1} (r \times r_1) \times \log_{r_1} (r \times r_1 \times r_1) = 1 + \log_{r_1} r + \log_{r_1} r = (r + \log_{r_1} r) / (r - \log_{r_1} r)$$

$r - (\log_{r_1} r)^2 \rightarrow (\log_{r_1} r)^2 + r - (\log_{r_1} r)^2 = r$ (۲) (۲)

$$\log_{r_1} (1-x)^r (1-x)^r = 1 \rightarrow 1 = (1-x)^2 \rightarrow 1-x=1 \rightarrow x=-1$$

$\log_{r_1} r = 1$ ✓ (۲) (۲)

$$\log_r (x-r)(x^2+rx+r) = 3 \rightarrow x^3 - r^3 = r^3 \rightarrow x^3 = 1r \rightarrow x = r^{1/3} \rightarrow \log_{r^{1/3}} r^{1/3}$$

$r \log_r r = r$ ✓ (۲) (۵)

$$\log(r-x) - \log(r-x)^2 = 3 \log(r-x) = 3 \rightarrow 1 = r-x \Rightarrow x = -1$$

$\log_{r^{1/2}} r = 2$ ✓ (۲) (۶)

$$r^{x^2-2} = r^{2x} \Rightarrow x^2 - 2 = 2x \rightarrow x^2 - 2x - 2 = 0 \rightarrow \frac{2 \pm \sqrt{4+8}}{2} = 2 \pm \sqrt{2}$$

$x > 2 \rightarrow x = 2 + \sqrt{2} \Rightarrow \log_{r^{1/2}} r^{1/2} = \frac{1}{2}$ ✓ (۲) (۷)

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$$\log_{\sqrt{r}} \sqrt{r} = \frac{1}{\frac{1}{r} \log_r \sqrt{r}} = \frac{1}{\frac{1}{r} (\log_r r + \log_r 1)} = \frac{1}{\frac{1}{r} (1 + 0)} = \frac{1}{\frac{1}{r}} = r$$

$\log_{\sqrt{r}} \sqrt{r} = 1/2$ (A)

(r)

$$\log_{\sqrt{r}} r = r \log_r r = \frac{1}{r} \rightarrow \log_r r = \frac{1}{r} \rightarrow \log_{\sqrt{r}} r = \frac{1}{r} \rightarrow \log_{\sqrt{r}} r + \log_{\sqrt{r}} r = \log_{\sqrt{r}} r^2 = \frac{1}{r}$$

(9)

$$\log_{\sqrt{r}} r = \frac{1}{\log_r \sqrt{r}} = \frac{1}{\log_r r + \log_r 1} = \frac{1}{\frac{1}{r} + 0} = \frac{r}{1} = r$$

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$$a \log_r a + b \log_r b = \log_r (a+b) - a = 0 \Rightarrow \log_r a = \frac{a}{a+b}$$

(r) (10)

$$\rightarrow \log_r a = \frac{a+b}{a} \rightarrow \log_r a - 1 = \log_r a - \log_r r = \log_r \frac{a}{r} = \frac{b}{a}$$

$$\Rightarrow \left(\frac{a}{r}\right)^{\frac{b}{a}} = r \log_r \frac{a}{r} = \sqrt{\frac{a}{r}}$$

(r)