

اداره ۲ مستجاب $P = (-\infty, -1) \cup (2, +\infty)$ شیب $n < -1$ شیب $n > 2$

نام و نام خانوادگی: پاسخنامه تشریحی تکلیف شماره ۲۳ کلاس: از هم در نظر

طبق قراین و لا

$$\log_m^n a \quad \frac{\log_m^n a}{\log_m^n a} = a$$

$$b = \log_{mn}^{n^2 n} = \frac{2 \log_m n + \log_n n}{\log_m n + \log_n n} = \frac{2a+1}{a+1} = 1 + \frac{a}{a+1} \quad 1, \dots$$

$$\rightarrow [b] = 1$$

(الف) $y = \sqrt{\frac{n}{\log_{\frac{1}{r}} n}}$

$$n > 0$$

$$\log_{\frac{1}{r}} n \neq 0$$

$$\log_{\frac{1}{r}} n = 0 \rightarrow n = 1 \Rightarrow n \neq 1$$

$$\frac{n}{\log_{\frac{1}{r}} n} \geq 0 \quad \frac{\log_{\frac{1}{r}} n}{\log_{\frac{1}{r}} n} = 1$$

صورت $\oplus$
مخرج $\oplus$
شیب $\ominus$
 $P_y = (0, 1)$
شیب $\ominus$
شیب $\ominus$

(ب) $y = \frac{\log(n^2 - n - 2)}{\sqrt{n^2 - 1} + 1}$

$$n^2 - n - 2 > 0 \quad (n-2)(n+1) > 0$$

$$+ \frac{1}{2} - \frac{1}{2} + \quad n < -1 \quad \text{or} \quad n > 2 \quad \textcircled{I}$$

$$\sqrt{n^2 - 1} + 1 \neq 0$$

$$n^2 - 1 \geq 0 \quad n \leq -1 \text{ or } n \geq 1 \quad \textcircled{II}$$

$$r \log_a^n + \log_a^r = 2 \quad \frac{1}{r} \log_a^n + \log_a^r = 2$$

$$\log_a^r + \log_a^r = 2 \quad \log_a^n + \frac{1}{\log_a^n} = 2$$

$$(\log_a^n)^r + 1 = 2 (\log_a^n)$$

$$t^r + 1 = 2t \quad t^r - 2t + 1 = 0 \rightarrow (t-1)^r = 0$$

$$t = 1 \rightarrow \log_a^n = 1 \quad \boxed{a = 3}$$

$$\log 5 = \log \frac{1}{5} = 1 - \log 5 = 1 - 0,7 = 0,3$$

$$\log \frac{5}{3} = \log 5 - \log 3 = 0,3 - 0,5 = -0,2$$

$$\log 9 = \log 3^2 = 2 \log 3 = 2 \times 0,5 = 1$$

$$\log 15 = \log 5 \times 3 = \log 5 + \log 3 = 0,3 + 0,5 = 0,8 \Rightarrow 0,3n^2 + 0,8n - 1 = 0$$

$$\Delta = 0,8^2 - 4 \times 0,3 \times (-1) = 0,64 + 1,2 = 1,84 \quad |n_1 - n_2| = \frac{\sqrt{\Delta}}{|a|} = \frac{\sqrt{1,84}}{0,3} = \frac{\sqrt{196}}{3} = \frac{14}{3}$$

طبق قراین و لا

$$\log_5^r = \frac{1}{r} \Rightarrow \frac{\log 5}{\log 5} = \frac{1}{r}$$

$$\frac{\log 5}{\log 5} = \frac{1}{r}$$

$$\frac{\log 5}{\log 5 - \log 5} = \frac{1}{r} \quad \frac{\log 5}{1 - \log 5} = \frac{1}{r} \quad 1 - \log 5 = 2 \log 5 \quad 3 \log 5 = 1$$

$$\log 5 = \frac{1}{3} \quad \log_5^r = 2,8 \quad \frac{\log 5}{\log 5} = 2,8 \Rightarrow \frac{\log 5}{\frac{1}{3}} = 2,8$$

$$\log 5 = \frac{1}{3} \times 2,8 = \frac{1}{3} \times \frac{28}{10} = \frac{28}{30}$$

$$\log_{10} \frac{1}{5} = \frac{\log 1}{\log 5} = \frac{1}{\log 5 + \log 5}$$

$$= \frac{1}{\frac{1}{3} + \frac{1}{3}} = \frac{1}{\frac{2}{3}} = \frac{3}{2}$$

$$= \left(\frac{1}{5}\right) \left(\frac{1}{4}\right)^{\log_5 2} = \left(\frac{1}{5}\right)^{-\frac{1}{2}} = 5^{\frac{1}{2}} = \sqrt{5}$$

عبارت نقل الی

$$\log_5 5 \times \log_5 2 = \log_5 2 \quad (I)$$

$$(I) \Rightarrow \log_5 5 \times \log_5 2 = 1 \times \log_5 2 = \log_5 2 = \frac{1}{2}$$

$$(II) \Rightarrow \log_5 4 = \frac{\log_5 2}{\log_5 5} \quad \log_5 4 = \frac{\log_5 2 + \log_5 2}{\log_5 2 + \log_5 2} = \frac{1 + 1}{1 + 1} = \frac{2}{2} = 1$$

$$\log_5 12 = \frac{\log_5 12}{\log_5 12} \quad \log_5 12 = \log_5 4 + \log_5 3 = \log_5 2^2 + \log_5 3 = 2 \log_5 2 + \log_5 3$$

$$\frac{2}{5} \log_5 2 + \frac{1}{5} \log_5 3 = \frac{2}{5} + \frac{1}{5} \log_5 3 \quad \log_5 12 = \log_5 2^2 + \log_5 3 = 2 \log_5 2 + \log_5 3 = \frac{2}{5} + \log_5 3$$

$$(5/4)^{2n-1} = \left(\frac{125}{8}\right)^{n-1} \quad \frac{125}{8} = \left(\frac{5}{2}\right)^3 \Rightarrow \left(\frac{5}{2}\right)^{2n-1} = \left(\left(\frac{5}{2}\right)^3\right)^{n-1}$$

$$\frac{5}{2} = \left(\frac{5}{2}\right)^{-1} \quad \left(\frac{5}{2}\right)^{2n-1} = \left(\frac{5}{2}\right)^{-3(n-1)} \Rightarrow 2n-1 = -3(n-1)$$

$$n_1 = -1 \text{ غلط} \quad n_2 = \frac{1}{5} \text{ غلط} \quad \log_5 12 = \log_5 2^2 + \log_5 3 = 2 \log_5 2 + \log_5 3 = \frac{2}{5} + \log_5 3$$

$$\log_5 6 = \log_5 2 + \log_5 3 \quad \frac{1}{5} \log_5 6 = \frac{1}{5} (1 + \log_5 3) \quad \text{سوال ۹}$$

$$\log_5 6 = 2 \log_5 3 = \log_5 3^2 \quad \log_{10} 10^{-n} = -n$$

$$\log_5 12 = \frac{\frac{2}{5} + \frac{1}{5} \log_5 3}{\frac{1}{5}} = \frac{\frac{2}{5} + \frac{1}{5} \left(\frac{2n-1}{2}\right)}{\frac{1}{5}} = \frac{2 + \frac{2n-1}{2}}{1} = 2 + \frac{2n-1}{2} = \frac{4 + 2n - 1}{2} = \frac{3 + 2n}{2}$$

$$\frac{1}{-b} = \log_5 4 \quad \frac{5a}{b} = \log_5 4$$

$$\frac{a}{b} = \frac{\log_5 4}{5} = \frac{2 \log_5 2}{5} = \frac{\log_5 2}{2.5} \quad 2a = b + c \quad \text{دستهای حساب}$$

$$\Rightarrow 2a = b + c \Rightarrow \frac{2a}{b} = 1 + \frac{c}{b} \quad \left(\frac{a}{b} = \frac{\log_5 2}{2.5}\right) \quad 2 \left(\frac{\log_5 2}{2.5}\right) = 1 + \frac{c}{b}$$

$$\frac{1}{\frac{1}{2} \log_5 2} = \log_5 \frac{1}{\frac{1}{2} \log_5 2} \quad \left(\frac{1}{\sqrt{2}}\right)^{\frac{c}{a}} = \left(\frac{1}{\sqrt{2}}\right)^{\log_5 \frac{1}{\sqrt{2}}} = \left(\frac{1}{5}\right)^{\log_5 \frac{1}{\sqrt{2}}} = \left(\frac{1}{5}\right)^{\log_5 \frac{1}{2^{\frac{1}{2}}}} = \left(\frac{1}{5}\right)^{\log_5 \frac{1}{2^{\frac{1}{2}}}}$$