

نام و نام خانوادگی: سید محمد یزدانی / پاسخنامه تشریحی تکلیف شماره ۲۳ کلاس: یازدهم B

$$\log_n^m a / \log_{mn}^m n, b, a > 0 \rightarrow \frac{\log m}{\log n} = a, \frac{\log m + \log m + \log n}{\log m + \log n} = b$$

$$\rightarrow a \log n = \log m \rightarrow 1 + \frac{\log m}{\log m + \log n} \xrightarrow{\text{جمله‌ها}} 1 + \frac{a \log n}{(a+1) \log n}$$

$$\xrightarrow{\text{لتراز } 2a+2} \frac{2a+1}{a+1} = b \rightarrow [b], 1 \checkmark$$

الف) $\sqrt{\frac{x}{\log x}} \rightarrow x > 0 \rightarrow \frac{x}{\log x} \geq 0 \rightarrow \log \frac{1}{x} > 0$

رسم نمودار: $y = \log x$ و $y = \frac{1}{x}$ در $(0, 1)$ و $(1, \infty)$ $P_{xy}(0, 1) \checkmark$

ب) $\log_2(x^2 - x - 2) - \log_2(x+1)(x-2) > 0 \rightarrow \frac{x^2 - x - 2}{(x+1)(x-2)} > 0$

نمودار: $\frac{x^2 - x - 2}{(x+1)(x-2)} > 0$ در $(-1, 2)$ و $(2, \infty)$ $(-1, 2) \cup (2, \infty) \checkmark$

$$2 \log_a^a + \log_a^a x = 2 \frac{x-9}{x+9} \quad \log_a^a 2 + \log_a^a 3 = 2$$

$$\rightarrow a = 3 \checkmark \rightarrow \log_3^3 9 + \log_3^3 3 = 2 \cdot 1 + 1$$

$$\log_2 2.0/3 / \log_3 0.4 \rightarrow (\log_2 5) \log_2 10 \cdot \log_2 2 = 1 - 0/3 = 0/7$$

$$\rightarrow [\log_2 5 \log_2 3] x^2 + (\log_2 3 + \log_2 3) x - (\log_2 3 + \log_2 5) \rightarrow 3x^2 + 8x - 11$$

مقادیر: $\frac{\sqrt{\Delta}}{a} = \frac{\sqrt{196}}{3} = \frac{14}{3} \checkmark$

$$\log_2^7 218 / \log_5^2 0.15 \rightarrow \frac{\log 2}{\log 5} = \frac{\log 2}{1 - \log 2} \cdot \frac{1}{2} = \log 2 \cdot \frac{1}{3}$$

$$\rightarrow \log_5 1 - \frac{1}{3} = \frac{2}{3} \rightarrow \frac{\log 7}{\log 2} \cdot \frac{\log 7}{\frac{1}{3}} = \frac{14}{5} \rightarrow \log_7 \frac{14}{15}$$

$$\rightarrow \log_{14}^{10} \log_{14}^{10} \frac{1}{\log_2 14 \log_7} = \frac{1}{\frac{19}{15}} \Rightarrow \frac{15}{19} \checkmark$$

$$\log_3 5 \cdot 1/5 / \log_2 3 \cdot 1/6 \rightarrow \frac{\log_3 5}{\log_2 3} \cdot 1/6, \frac{1 - \log_2 2}{\log_3 2} \cdot \frac{1}{\log_3 2} \cdot \frac{1}{\log_3 5} \cdot 1/5$$

$$\rightarrow \frac{\log_2 2}{\log_3 2} \cdot \frac{1}{16} \rightarrow \frac{1}{\log_3 2} \cdot \frac{15}{10} + \frac{10}{16} \cdot \frac{17}{8} \rightarrow \log_3 \frac{8}{17} \cdot \log_2 \frac{5}{17}$$

$$\cdot \log_5 1 - \frac{5}{17} \cdot \left(\frac{12}{17}\right) \rightarrow \log_{15} \frac{\log_2 2 + \log_3 3}{\log_3 2 + \log_5 5} \cdot \frac{13}{20} \rightarrow \frac{13}{20} \cdot \frac{45}{17}$$

$$\log_8^{18} m / \log_4^{12} ? \rightarrow \frac{\log_3 3 + \log_3 3 + \log_3 2}{3 \log_2 2} \cdot m = 3m \log_2 2 \cdot \log_2 2 + 2 \log_3 3$$

$$\rightarrow \frac{(3m-1) \log_2 2 \cdot \log_3 3}{2 \log_2 2 + \log_3 3} \cdot ? \text{ Till } \checkmark$$

$$\frac{(2 + \frac{3m-1}{2}) \log_2 2}{2 \log_2 2} \cdot \frac{3m+3}{2} \cdot \frac{3m+3}{4} \checkmark \cdot 0.75m + 0.75$$

$$\left(\frac{2}{5}\right)^{2x-1} = \left(\frac{125}{8}\right)^{x^2} \rightarrow \frac{2^{2x}}{5^{2x}} \cdot \frac{5}{2} = \frac{5^{3x^2}}{2^{3x^2}} \rightarrow 2^{3x^2+2x-1} = 5^{3x^2+2x-1}$$

$$\frac{0!}{-1} \rightarrow 3x^2+2x-1=0 \rightarrow \frac{-2 \pm 4}{6} = -1, \left(\frac{1}{3}\right) \checkmark \rightarrow -1 - \sqrt{-5}$$

$$\log_8 4 = \frac{2}{3} \log_2 2 \cdot \left(\frac{2}{3}\right) \checkmark$$

$$\log_2^3 a / \log_8^b \cdot \frac{2}{3} (1+a) \rightarrow \frac{1}{3} \log_2^b \cdot \frac{2}{3} (1+a) \rightarrow \frac{\log_2 b}{\log_2 2} \cdot 2 + 2a \checkmark$$

$$\rightarrow 2 \log_2 2 + 2a \log_2 2 = \log_2 b \cdot \frac{\log_2 3}{\log_2 2} \cdot a \rightarrow 2 \log_2 2 + 2 \log_3 3 = \log_2 b \cdot a$$

$$2(\log_2 2 \cdot 3) = \log_2 b \rightarrow \log_2 36 = \log_2 b \rightarrow b = 36 \checkmark \rightarrow \log_{100} 2 \checkmark$$

$$\frac{4a}{b} \cdot \log_4 / (c+b) \cdot 2a \rightarrow \frac{2a}{b} \cdot \log_2 2 = \frac{b+c}{b} \cdot \log_2 2 \checkmark$$

$$\rightarrow 1 + \frac{c}{b} \cdot \log_2 2 \rightarrow \frac{c}{b} = -\log_2 5 \rightarrow 2a \cdot \log_2 2 / b \cdot \log_2 10 / c = -\log_2 5$$

$$2^{\frac{1}{8} \cdot \frac{\log_2 5}{\log_2 2}} \rightarrow 2^{\frac{\log_2 5}{4 \cdot 2}} \rightarrow \log_2^2 \frac{1}{4} \cdot \log_2 5 \rightarrow \log_2^4 \frac{1}{2} \cdot \log_2 5$$

$$2 \cdot 4 \sqrt{5} \checkmark$$