

منوار کی تابع م صدت  $f(n) = 3^{An+B}$  انضاری تابع  $y = n^r$  رار دوتتا اصل ماک ا د 3 قطع می کند . عرض

$n=1 \rightarrow 1 = 3^{A+B}$   
 $n=3 \rightarrow 9 = 3^{3A+B}$

$A+B = 0$   
 $3A+B = 2$

$2A = 2 \rightarrow A = 1$   
 $B = -1$

$3^{-1} = \frac{1}{3}$

1

مجموع جواب ماک ساری  $\log_2(x^m+15) = m+3$   
 $\log_2(x^m+15) = m+3 \Rightarrow x^m+15 = 2^{m+3} \Rightarrow x^m - 2^{m+3} + 15 = 0$

$(x^m)^2 - 1 \times x^m + 15 = 0 \rightarrow x^m = t \rightarrow t^2 - 1t + 15 = 0 \Rightarrow (t-3)(t-5) = 0$

$t = 3 \Rightarrow x^m = 3 \Rightarrow m = \log_2^3$

$t = 5 \Rightarrow x^m = 5 \Rightarrow m = \log_2^5$

$\log_2^3 + \log_2^5 = \log_2^{15}$

2

حاصل عبارت  $(\log_{11}^3)^2 + \log_{11}^{13} \log_{11}^{13}$

$(\log_{11}^3)^2 + (\log_{11}^3 + \log_{11}^3)(\log_{11}^3 + 2\log_{11}^3) \Rightarrow \log_{11}^3 = 1 - \log_{11}^3$

$(\log_{11}^3)^2 + (2 - \log_{11}^3)(2 + \log_{11}^3) \Rightarrow (\log_{11}^3)^2 + 4 - (\log_{11}^3)^2 = 4$

3

اگر  $\log_2(n^2-2n+1) + 2\log_2(1-n) = 5$  مقدار  $\log_2^{(-n)}$  را بیابید

$y(1-n)^2 + 2y(1-n) = 5$

$\log_2^4 = 2$

$ay(1-n) = 5$

$\log_2(1-n) = 1$

$1-n = 2 \Rightarrow n = -1$

4

اگر  $\log_{\sqrt{r}}^n + \log_r^{(n^2+n+2)} + \log_r^{(n-2)} = 3$  مقدار  $\log_{\sqrt{r}}^n$  را بیابید

$\log_r^{n^2+n+2} + \log_r^{n-2} \Rightarrow \log_r^{n^2-1} = 3$

$n^2-1 = 8 \Rightarrow n^2 = 9 \Rightarrow n = \sqrt{9}$

$\log_{\sqrt{r}}^{\sqrt{14}} = \frac{\frac{1}{2}}{\frac{1}{2}} = 1$

5

؟  $\log_{\sqrt{r}}^{(-n)}$  سے  $\log_{\sqrt{r}}(r-n) = \log_{\sqrt{r}} \frac{1}{(n-r)^r} = r$  ✓

$$y^{r-n} = y^{(r-n)^r} = r \Rightarrow r y^{r-n} = r \Rightarrow y^{r-n} = 1$$

6

$$r-n = 1 \Rightarrow n = -1$$

$$y^{\frac{r}{\sqrt{r}}} = \frac{r}{\frac{1}{r}} = \underline{9}$$

$$r^{n-r} = r^{kn}$$

؟  $\log_{\frac{1}{r}}^{(n-r)}$  سے  $r^{n-r} = 11^n$  ✓

$$n^r - kn - r = 0 \Rightarrow (n-r)^r = 9 \Rightarrow n-r = \sqrt{9} \Rightarrow n = r + \sqrt{9}$$

$$n-r = -\sqrt{9} \Rightarrow n = r - \sqrt{9} \rightarrow \text{جوہ}$$

$$y_{\frac{r+\sqrt{9}-r}{9}} = y_{\frac{\sqrt{9}}{9}} = \underline{\frac{1}{r}}$$

7

$$y_{\frac{1}{18}}^{\frac{1}{9}} = \frac{y_{\frac{1}{18}}^{\frac{1}{9}}}{y_{\frac{1}{18}}^{\frac{1}{9}}}$$

؟  $\log_{\frac{1}{18}}^{\frac{1}{9}}$  سے  $\log_{\frac{1}{18}}^{\frac{1}{9}} = \frac{a}{\lambda}$  ✓

$$= \frac{r}{y_{\frac{1}{18}}^{\frac{1}{9}} + y_{\frac{1}{18}}^{\frac{1}{9}}} = \frac{r}{1 + r y_{\frac{1}{18}}^{\frac{1}{9}}} = \frac{r}{1 + r(\frac{a}{\lambda})}$$

8

$$\frac{\frac{r}{1 + \frac{r}{18}}}{a} = \frac{a}{v}$$

$$y_{\frac{1}{18}}^{\frac{1}{9}} = \frac{y_{\frac{1}{18}}^{\frac{1}{9}}}{y_{\frac{1}{18}}^{\frac{1}{9}}}$$

؟  $\log_{\frac{1}{18}}^{\frac{1}{9}}$  سے  $\log_{\frac{1}{18}}^{\frac{1}{9}} = 18$  ✓

$$= \frac{y_{\frac{1}{18}}^{\frac{1}{9}+1}}{y_{\frac{1}{18}}^{\frac{1}{9}+1}} = \frac{1,9+1}{1,9+1}$$

$$\frac{1}{r} y_{\frac{1}{18}}^{\frac{1}{9}} = \frac{1}{18}$$

$$y_{\frac{1}{18}}^{\frac{1}{9}} = 1,9$$

9

$$\frac{1,9}{1,9} = \frac{1,9}{1,9} = \underline{\frac{18}{18}}$$

؟  $\log_{\sqrt{r}}^{\frac{b}{a}}$  سے  $(a \log_r) n^r + an + b \log_r = 0$  ✓

$$n = -1 \rightarrow a \log_r - a + b \log_r = 0 \Rightarrow \log_r = y \rightarrow ay - a + by = 0$$

$$\div a \rightarrow y - 1 + \frac{b}{a} y = 0 \Rightarrow y - \frac{b}{a} y = 1 \rightarrow 1 - \frac{b}{a} = \frac{1}{\log_r}$$

10

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

$$\sqrt{r}^{-\log_r a} = a^{-\frac{1}{r}} = \underline{\sqrt{\sqrt{a}}}$$