

$$r^{(A(1)+B)}$$

1

$$r^{A+B} = r \rightarrow A+B=0$$

$$r^{A+B} = r \rightarrow r^{A+B} = r$$

$$\left. \begin{array}{l} -A+B=0 \\ r^{A+B}=r \end{array} \right\} \begin{array}{l} r^A + r^B = r \\ r^A - A = r \end{array}$$

$$\boxed{A=1, B=-1}$$

$$f(x) = r^{x-1} \rightarrow y = \frac{1}{r} \rightarrow \left(\frac{1}{r}\right)$$

$$\log_r (r^2 + 1) = 2 + r \rightarrow r^{2+r} = r^2 + 1 \rightarrow \frac{r^2}{r^2} \times 1 = r^{2r} + 1$$

2

$$r^2 - 1 + 1 = 0$$

$$(r-1)(r+1) = r+1$$

$$r^2 = r \rightarrow \log_r r = 2$$

$$r^2 = 1 \rightarrow \log_r 1 = 2$$

$$\log_r r + \log_r 1 = \log_r 1$$

$$\left(\log_r r \right)^r + \left(r \log_r r + \log_r r \right) \left(r \log_r r + r \log_r r \right) \quad \boxed{\log_r r = r}$$

3

$$\log_r r = \log_r r^1 - \log_r r^r \rightarrow r + (r - r + r) (r + r - r)$$

$$r + (r - r) (r + r) = r + r - r = r$$

$$\log (m^r - r + 1) + r \log (1 - m) = 1$$

4

$$\log (m^r)^r \rightarrow r \log^{1-m} + r \log^{1-m} = \log^{1-2} = 1$$

$$\log_r (1 - m) = r$$

$$\log_r^{1-m} = 1 \rightarrow 1 = 1 - m$$

$$m = 0$$

$$\log_r (m^r + r + 1) + \log_r (m - r) = r$$

$$\log_r (m^r + r + 1)(m - r) = r$$

$$\log_r r^{r-n} = r \rightarrow n = \sqrt[r]{r} = r^{\frac{r}{r}}$$

$$\log_r \frac{1}{r} = \log_r r^{-1}$$

$$\log_r r = r$$

$$\log^{(r-n)} - \log \frac{1}{r-n} = r \rightarrow \log^{(r-n)} = r \quad (3)$$

$$(r-n)^r = 10^r \rightarrow r-n=1 \rightarrow n=1$$

$$\log \frac{(r-n)}{\sqrt{r}} = \log r^{\frac{1}{r}} = \frac{1}{r} \log r = \frac{1}{r}$$

$$\log \frac{(r-n)}{4} = \log \frac{\sqrt{r}}{4} = \frac{1}{2} \log r - \log 4 = \frac{1}{2} \log r - 2$$

$$\begin{aligned} r^{2r-2} &= 1 \\ r^{2r-2} &= r^{2n} \\ 2r-2 &= 2n \\ r &= n+1 \end{aligned}$$

$$\log \frac{1}{12} = \frac{r \log r}{\log 12} = \frac{r \log r}{r \log r + \log 2} = \frac{10}{r+2} = \frac{10}{r} \times \frac{r}{r+2} = \frac{5}{r} \quad (1)$$

$$\log \frac{4}{12} = \frac{\log 4 + \log r}{r \log r + \log 2} = \frac{1.6 + 1}{r + 1.6} \quad \log r = 1.6 \quad (9) \text{ جواب}$$

$$\frac{1.6 \times 1.6}{1.6 \times 1.6} = \frac{1.6}{1.6}$$

$$(a \log r)^r + ar + b \log r = \dots \quad (11)$$

$$a \log r - a + b \log r \rightarrow b \log r = a - a \log r$$

$$b \log r = a (1 - \log r) = \frac{b}{a} = \frac{1 - \log r}{\log r} = \frac{\log a}{\log r} = \log \frac{a}{r}$$

$$\left(\frac{a}{r}\right)^{\frac{b}{a}} = r^{\frac{1}{r} \log \frac{a}{r}} \rightarrow r \log \frac{a}{r} \rightarrow \frac{1}{r} \log \frac{a}{r} = \frac{1}{r}$$