

سوال 1

$$f(x) = m^{A+B} \quad x = x^2 \rightarrow m = 1, 2$$

$$m^{A+B} = 2^1 \rightarrow m^{A+B} = 1 \rightarrow A+B=0$$

$$m^{2A+B} = 9 \rightarrow 2A+B=2 \quad \sim \quad \begin{cases} A+B=0 \\ 2A+B=2 \end{cases} \rightarrow \begin{cases} A=1 \\ B=-1 \end{cases}$$

تقریباً ناقص لگاریتمی

$$f(x) = m^{n-1} \quad n=0 \rightarrow \log m^{n-1} = f(x)$$

$$m = \frac{1}{m}$$

سوال 2

$$\log_2 (x^m + k) = 2m + 3 \quad r = r + 1$$

$$(x^m)^r - \lambda x r^m + k = 0 \xrightarrow{r=x} x^r - \lambda + k = 0 \rightarrow (x-r)(x-1) = 0$$

$$x^r = m \rightarrow \log_2^m x = x$$

$$x = \omega \rightarrow \log_2^{\omega} x \sim \log_2^r + \log_2^{\omega} = \log_2^{r\omega} = \log_2^{\omega}$$

سوال 3

$$\log_2^r (x^r) + \log_2^r (x^r) = \log_2^r (x^{2r}) = \log_2^{2r} x = \log_2^{2r} x$$

سوال 4

$$\log_2^r (x^r) + \log_2^r (x^r) = \log_2^r (x^{2r}) = \log_2^{2r} x = \log_2^{2r} x$$

سوال 5

$$\log_2 (n^r - 2n + 1) + r \log_2 (1-x) = \omega \quad \log_2 (-x) = ?$$

$$\log_2 (n-1)^r = r \log_2 (n-1) + r \log_2 (1-n) = \omega \rightarrow \log_2 (1-n) = \frac{\omega}{r}$$

$$r \log_2 (n-1) \quad \log_2^9 = 2 \quad 10 = (1+n) \quad 9 = -n/1$$

$$\log_2 (n^2 + 2n + 1) + \log_2 (n-2) = 3$$

سوال 3

$$\log_2 \frac{(n^2 + 2n + 1)(n-2)}{2} = 3 \Rightarrow n^2 - 1 = 1 \Rightarrow n^2 = 16$$

$$n = \sqrt{16} \quad \text{5}$$

$$\log_2 \frac{n}{\sqrt{2}} = \log_2 \frac{\sqrt{16}}{\sqrt{2}} = \frac{2}{\sqrt{2}} (\log_2 2) = \frac{2}{\sqrt{2}} = \frac{2}{1} = 2$$

$$\log_2 (2-n) - \log_2 \frac{1}{(n-2)^2} = 3$$

$$\log_2 \frac{(2-n)}{\sqrt{2}} = ?$$

سوال 4

$$\log_2 \frac{2-n}{(n-2)^2} = 3 \Rightarrow \log_2 \frac{-(n-2)}{(n-2)^2} = 3 \Rightarrow \frac{-(n-2)}{(n-2)^2} = 10^3$$

$$-(n-2) = 10 \Rightarrow n = -8$$

$$\log_2 \frac{1}{\sqrt{2}} = \frac{1}{\sqrt{2}} \log_2 2 = \frac{1}{\sqrt{2}} = \frac{1}{2}$$

$$n \times 2^x = 11^x$$

$$\log_2 (n-2) = ?$$

سوال 5

$$2, n \times 2^x = n^x$$

$$\Rightarrow x^2 - 2 = 2x \Rightarrow x^2 - 2x - 2 = 0$$

$$\Delta = 14 + 1 = 15 \quad \frac{2 \pm \sqrt{15}}{2}$$

$$\log_2 \frac{n-2}{2} = \log_2 \frac{2 + \sqrt{15} - 2}{2} = \frac{1}{2}$$

سوال 6

$$\log_2 \frac{1}{2} = \frac{1}{2}$$

$$\log_2 1 = ?$$

$$\frac{\log_2 1}{\log_2 2} = \frac{\log_2 1}{\log_2 2} = \frac{0}{1} = 0$$

$$\log_2 1 + \log_2 2 = \frac{0}{1} + \frac{1}{1} = \frac{1}{1} = 1$$

سوال 7

$$\log_2 \frac{1}{2} = 0.5$$

$$\log_2 \frac{7}{12} = ?$$

$$\frac{\log_2 7}{\log_2 12} + \log_2 2 = \frac{0.78 + 0.58}{1 + 0.58} = \frac{1.36}{1.58} = \frac{136}{158}$$

سوال 8

سوال 10

$$(a \log_2 x) n^2 + a n + b \log_2 x = 0 \quad n = -1$$

$$+ \sqrt{x} \frac{b}{a} = ?$$

$$(a+b) \log_2 x - a = 0$$

9

$$(a+b) \log_2 x = a \sim \left(1 + \frac{b}{a}\right) \log_2 x = 1 \sim 1 + \frac{b}{a} = (\log_2 x)^2$$

$$\frac{b}{a} = \log_2^2 x - 1 \sim \sqrt{x} \log_2^2 x - 1 \quad \frac{1}{x} (\log_2^2 x - 1)$$

$$\frac{(x \log_2^2 x)^{\frac{1}{x}}}{x^{\frac{1}{x}}} = \frac{(\log_2^2 x)^{\frac{1}{x}}}{x^{\frac{1}{x}}} = \left(\frac{10}{x}\right)^{\frac{1}{x}} = \sqrt{x}$$