

$$\begin{aligned} A+B &= 1 \\ A+B &= 9 \end{aligned}$$

$$\begin{aligned} A+B &= 50 \\ A+B &= 52 \end{aligned}$$

$$\begin{aligned} A &= 1 \\ B &= -1 \end{aligned}$$

$$3^{x-1} \rightarrow c^{-1} = \frac{1}{30} \checkmark$$

(۲)

سوال ۱

$$r^{x+2} = r^{2x} + 1$$

$$r^{2x} - 1 = (r^x - 1)(r^x + 1)$$

$$\begin{aligned} r^x &= 2 \quad x = \log_2 2 \\ r^x &= 2 \quad x = \log_2 2 \end{aligned}$$

$$\log_2 2 + \log_2 2 = \log_2 4 \checkmark$$

(۳)

سوال ۲

$$\log(1-a)^2 + 2 \log(1-a) = 2 \log(1-a) + 2 \log(1-a) = 4 \log(1-a) = 4$$

$$\log(1-a) = 1 \quad 1-a = 10 \quad a = -9 \checkmark$$

$$\log_{10} \frac{-9}{10} = 2 \checkmark$$

(۴)

سوال ۳

$$\log(a^2 - 5a + 1) = \log(a-1)$$

$$\log_2 2 = 1$$

$$1 = 2^x - 1 \quad x = \frac{2}{2} \checkmark$$

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

(۵)

سوال ۴

$$\log(2-a) - \log \frac{1}{2-a} = \log(2-a) + \log(2-a) = 2 \log(2-a) = 2$$

$$\log(2-a) = 1 \quad 2-a = 10 \quad a = -8 \checkmark$$

$$\log_{10} \frac{-8}{10} = 2 \checkmark$$

(۶)

سوال ۵

$$(\lg_{r_1}^r)^r + \lg_{r_1}^{r \times r_1} \lg_{r_1}^{r_1 \times r_1} = (\lg_{r_1}^r)^r + (\lg_{r_1}^{r_1} + 1)(\lg_{r_1}^{r_1} + 1) \quad -r$$

$$(\lg_{r_1}^r)^r + (1 - \lg_{r_1}^r + 1)(1 + \lg_{r_1}^r + 1) =$$

$$(\lg_{r_1}^r)^r + (r - \lg_{r_1}^r)(r + \lg_{r_1}^r) = (\lg_{r_1}^r)^r + r - (\lg_{r_1}^r)^r = \boxed{r}$$

$$\mu^{n^r - r} = \mu^{r_n} \rightarrow n^r - r_n - r = 0 \quad \mu = \frac{-b \pm \sqrt{\Delta}}{2a} \rightarrow n = \frac{r \pm r\sqrt{4}}{r} = \begin{cases} r - \sqrt{4} \times \\ r + \sqrt{4} \checkmark \end{cases} \quad -V$$

$$\lg_4^{r + \sqrt{4} - r} = \boxed{\frac{1}{r}}$$

$$\lg_{1n}^n = \frac{\lg_{r_1}^n}{\lg_{r_1}^{r_1}} = \frac{r \lg_{r_1}^r}{r + \lg_{r_1}^r} = \frac{r \times \frac{\Delta}{n}}{r + \frac{\Delta}{n}} = \boxed{\frac{\Delta}{v}} \quad -A$$

$\lg_{r_1}^{r_1} + \lg_{r_1}^r$

$$\lg_{r_1}^r = \frac{1}{r} \lg_{r_1}^r = 0,1 \rightarrow \lg_{r_1}^r = 1,9 \quad -9$$

$$\lg_{1r}^4 = \frac{1}{\lg_{r_1}^{1r}} = \frac{1}{\lg_{r_1}^r + \lg_{r_1}^4} = \frac{1}{\frac{1}{\lg_{r_1}^r} + 1} = \frac{1}{\frac{1}{2} + 1} = \boxed{\frac{2}{3}}$$

$$x = -1 \rightarrow a \lg r - a + b \lg r = 0$$

$$b \lg r = a(1 - \lg r)$$

$$b \lg r = a \lg a \rightarrow \frac{b}{a} = \frac{\lg a}{\lg r} = \lg_r a$$

$$(\sqrt{r})^{\lg_r a} = a^{\lg_r \sqrt{r}} = a^{\frac{1}{r}} = \boxed{\sqrt{a}}$$