

$$1 \rightarrow m^2 - \alpha s - 1 = 0 \quad -\alpha + \left(\frac{1}{r}\right)^{\alpha+\beta} = 0 \rightarrow \left(\frac{1}{r}\right)^{\alpha+\beta} = \alpha \rightarrow -\alpha - \beta = 1 \rightarrow \alpha + \beta = -1$$

$$2 \rightarrow m^2 - m s - 2 = 0 \quad -2 \left(\frac{1}{r}\right)^{\alpha+\beta} = \alpha \rightarrow \left(\frac{1}{r}\right)^{\alpha+\beta} = -\frac{\alpha}{2} \rightarrow -2\alpha + \beta = 2$$

$$\alpha + \beta = -1 \rightarrow -1 + \beta = -1 \rightarrow \beta = 0$$

$$2\alpha + \beta = 2 \rightarrow 2\alpha = 2 \rightarrow \alpha = 1$$

$$f(x) = -2 + \left(\frac{1}{r}\right)^{-x} = -2 + \left(\frac{1}{r}\right)^{-x} = -2 + r^x = \checkmark$$

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$$\left(\frac{1}{4}\right)^t = \frac{1}{9} \rightarrow 10_2 \frac{1}{4} = 10_2 \frac{1}{9} \rightarrow t = \frac{1}{2} 10_2 4 \rightarrow t = \frac{1}{2} \left(\frac{19}{14}\right) = \frac{19}{28}$$

باقره من فلندا $\frac{1}{9}$

$$10_2 \frac{1}{4} = 10_2 \frac{1}{9} \rightarrow 10_2 \frac{1}{4} + 10_2 \frac{1}{9} = 1 + \frac{\sqrt{19}}{14} = 10_2 \frac{19}{28}$$

$$\frac{10_2 \frac{1}{4}}{10_2 \frac{1}{9}} = 10_2 \frac{1}{9} = \frac{10_2 \frac{1}{9}}{\frac{1}{14}} = \frac{\sqrt{19}}{14}$$

0
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$$\frac{11}{100} = \frac{1}{n} \quad \frac{1}{n} = \frac{1}{\sqrt{v}} \rightarrow 10_2 \left(\frac{1}{n}\right)^t = 10_2 \frac{1}{\sqrt{v}} \rightarrow t = 10_2 \frac{1}{\sqrt{v}} = t = \frac{1}{2} 10_2 \frac{1}{v}$$

باقره من فلندا $\frac{1}{n}$

$$10_2 \frac{1}{v} = \frac{10_2 \frac{1}{v}}{10_2 \frac{1}{n}} = \frac{1}{\frac{1}{15}} = \frac{1}{15}$$

$$f = \frac{1}{2} \left(\frac{1}{n}\right) = \frac{1}{9}$$

0
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$$\frac{96}{100} = \frac{1}{n} \quad \left(\frac{96}{100}\right)^t = \frac{1}{n} \quad 10_2 \frac{96}{100} = 10_2 \frac{1}{n} \rightarrow t = \frac{-10_2 \frac{1}{n}}{10_2 \frac{96}{100}}$$

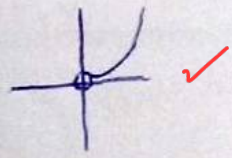
$$10_2 \frac{96}{100} = 10_2 96 - 2 \rightarrow 1,98 - 2 = -0,02$$

$$t = \frac{-0,02 \cdot n}{-0,02} = 2 \checkmark$$

$$10_2 96 = 10_2 2 \times 48 = 10_2 2 + 2 10_2 48 = 0,1 + 2(0,02) = 0,04$$

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الف) $9^{10_2 m} = m^{10_2 9} = m^2$
 $m > 0$



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ب) $10_2 m^2 = 2 10_2 m$



$$\text{حجم باقیمانده} = \frac{M_0}{4} = M_0 \left(\frac{\lambda}{9}\right)^t \rightarrow \left(\frac{\lambda}{9}\right)^t = \frac{1}{4} \quad -V$$

$$\xrightarrow{\lg} t \lg \frac{\lambda}{9} = \lg \frac{1}{4} \rightarrow t (\lg \lambda - 2 \lg 3) = -(\lg 3 + \lg 3)$$

$$t = \frac{-(\lg 3 + \lg 3)}{\lg \lambda - 2 \lg 3} \xrightarrow{\div \lg 3} t = \frac{-(\lg 3 + 1)}{\lg \lambda - 2} = \frac{-(\frac{V}{12} + 1)}{3(\frac{V}{12}) - 2} = \boxed{\frac{19}{3}}$$

$$\frac{\lg 3}{\lg 3} = \frac{\lg 3}{\lg 3} = \frac{1, 3}{1, 3} = \frac{V}{12}$$

$$3\lambda = \min = 90 \times \text{تعداد}$$

$$\text{حجم باقیمانده} = \frac{M_0}{V} = \left(\frac{V}{\lambda}\right)^t M_0 \rightarrow \left(\frac{V}{\lambda}\right)^t = \frac{1}{V} \quad -\lambda$$

$$\xrightarrow{\lg} t \lg \frac{V}{\lambda} = -\lg V \rightarrow t (\lg V - \lg \lambda) = -\lg V$$

$$t \left(\frac{10}{4} - 3 \times \frac{5}{8}\right) = -\frac{10}{4} \rightarrow t = \lambda \text{ هفت} \times V = 24 \text{ روز}$$