

$$4a^r = \partial a^r a + r a^r a$$

$$4(a+d)^r = \partial (a+d)a + r(a+d)a$$

$$4(a+d)^r = a(\partial a + r a + \partial d + r d) \Rightarrow 4a^r + r a d + 4d^r = r a^r + 1 r a d$$

$$r a^r + a d - 4d^r = 0 \Rightarrow (r a - r d)(a + r d) = 0 \begin{cases} r a = r d \rightarrow a = r d \\ a = -r d \end{cases}$$

$$\begin{cases} \frac{a}{d} = \frac{a+r d}{d} = \frac{r d + r d}{d} = r + r = 2r \\ \frac{a}{d} = \frac{a+d}{d} = \frac{d}{d} = 1 \end{cases} \Rightarrow \boxed{\frac{a}{d} = 1}$$

بجواب a, b, c and $a+d$ $a, b, \frac{a}{r}, \frac{a+d}{r}$ $\Rightarrow \frac{a+r d}{\frac{a}{r}} = \frac{a}{\frac{a}{r}} \Rightarrow a^r = a^r + r a d + r d^r$

$$r d^r + r a d = 0 \Rightarrow d(r d + r a) = 0 \begin{cases} d=0 \text{ X } \text{لا يجوز} \\ r d = -r a \Rightarrow d = -\frac{r}{r} a \Rightarrow a = -\frac{r}{r} d \end{cases}$$

$$q = \frac{a}{a+d} = \frac{-\frac{r}{r} d}{-\frac{r}{r} d + d} = \frac{-\frac{1}{r} d}{\frac{1}{r} d} = -1 \Rightarrow \boxed{r q = -r}$$

بجواب a, b, c $a, a q, a q^r$ a, b, c $r a q, r a, a q^r \Rightarrow a q^r - r a = r a - r a q \Rightarrow a q^r + r a q - r a = 0$

$$a(q^r + r q - r) = 0 \quad a(q-1)(q+r) = 0 \begin{cases} q=1 \text{ X } \text{لا يجوز} \\ a=0 \text{ X } \text{لا يجوز} \\ q=-r \end{cases}$$

$$\frac{a q}{a q} = \frac{a q^1}{a q^0} = q^r \Rightarrow q = -r \quad (-r)^r = \boxed{-r^r}$$

$$\frac{a q}{(a r)^r} = \frac{a r}{a^r} = r \Rightarrow \frac{a q^r}{a^r q^r} + \frac{a q}{a^r} = r \Rightarrow \frac{q^r}{a^r} + \frac{a q}{a^r} = r \Rightarrow \frac{q^r + a q}{a^r} = r$$

$$r a^r - a q - q^r = 0 \Rightarrow (r a + q)(a - q) = 0 \begin{cases} a = q \\ r a = -q \Rightarrow q = -r a \end{cases}$$

$$\begin{cases} \frac{a^r}{a^r} = \frac{a^r}{a q} = \frac{a^r}{-r a^r} = \boxed{-\frac{1}{r}} \\ \frac{a^r}{a q} = \frac{a^r}{a^r} = \boxed{1} \end{cases}$$

$a_p = \pm \sqrt{a} \varepsilon$ $\xrightarrow{r \text{ و } \varepsilon}$ $a q^r = a q^r$ $a q^r - a q^r = 0$

$$\frac{a q^r}{a q} = \frac{r v}{1} \Rightarrow q^r = r v \Rightarrow q = r$$

$$a q^r = a \times 1 = r v \Rightarrow a = \frac{1}{r}$$

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