

تکلیف ۱۵

نام و نام خانوادگی

لایحه رضایتی و امضاء

۱۹/۱۵

$$\alpha + \alpha q + \alpha q^2 = 21 \quad (1)$$

$$\alpha \times \alpha q \times \alpha q^2 = \alpha^3 q^3 = 9f \rightarrow (\alpha q)^3 = 9f \rightarrow \alpha q = f \rightarrow \alpha = \frac{f}{q}$$

$$\rightarrow \alpha + f + fq = 21 \rightarrow \frac{f}{q} + f + fq = 21$$

$$\rightarrow f + fq + fq^2 = 21q \rightarrow fq^2 - 17q + f = 0$$

$$\text{دستی} \rightarrow q^2 - 17q + 19 = 0 \rightarrow (q - 14)(q - 1) = 0$$

$$\rightarrow q = \frac{17 \pm \sqrt{17^2 - 4 \times 19}}{2} = 14 \text{ or } 1$$

$$x^2 + f, 2x, x^2 - f$$

$$\text{دستی} \rightarrow fx^2 = (x^2 - f)(x^2 + f) \rightarrow fx^2 = x^4 + 2x^2 - f$$

$$\rightarrow x^4 - 2x^2 + f = 0 \rightarrow (x^2 - f)(x^2 + f) = 0$$

$$\rightarrow x^2 = f \Rightarrow x = \pm \sqrt{f} \quad \text{or} \quad x^2 = -f \Rightarrow x = \pm \sqrt{-f}$$

$$\rightarrow x^2 + f, 2x, x^2 - f \rightarrow 1, f, 2 \Rightarrow q = \frac{1}{f}$$

$$S_y = \alpha \frac{(1 - q^y)}{(1 - q)} \rightarrow 1 \frac{1 - \frac{1}{f^y}}{1 - \frac{1}{f}} = 1 \times \frac{1 - \frac{1}{17^4}}{\frac{1}{17}} = \frac{17^4}{1}$$

$$S_d = a + aq + aq^2 + aq^3 + aq^4 \rightarrow a(1 + q + q^2 + q^3 + q^4) \quad (r)$$

$$a = 24r, \quad 24r \left(\frac{121}{11} \right) = \boxed{264} \quad (r) \checkmark$$

$$d = \frac{b-a}{p+1} \rightarrow d = \frac{95-1}{9} = 10.1 \Delta \quad (r) \checkmark$$

$$\rightarrow 1, \frac{1}{10}, \frac{1}{100}, \frac{1}{1000}, \frac{1}{10000} \rightarrow A = 22, \Delta$$

$$q^{p+1} = \frac{b}{a} \rightarrow \frac{95}{1} = q^9 \rightarrow q = \pm 2$$

$$1, \frac{1}{2}, \frac{1}{4}, \frac{1}{8}, \frac{1}{16}, \frac{1}{32}, \frac{1}{64} \rightarrow B = \pm 1$$

$$1, -\frac{1}{2}, \frac{1}{4}, -\frac{1}{8}, \frac{1}{16}, -\frac{1}{32}, \frac{1}{64}$$

$$A+B = 22, \Delta \pm 1 \leftarrow \begin{matrix} = 5.1 \Delta \\ = 23, \Delta \end{matrix} \quad (r) \checkmark$$

$$-24, -\frac{9\Delta}{5}, \dots \rightarrow -24 + (n-1)\frac{1}{5} = \frac{1}{5}n - \frac{9\Delta}{5}$$

$$+ \frac{1}{5} \quad n=1 \rightarrow \frac{1-1}{5} - \frac{9\Delta}{5} = \frac{5}{5} = 1$$

$$421, a_r, \dots \rightarrow aq^{n-1} \rightarrow 421 q^{n-1}$$

$$421 q^v = 1 \rightarrow q^v = \frac{1}{421} \rightarrow q = r^{-1} = \frac{1}{r} \quad (r) \checkmark$$

$$\alpha_1 + r_1 d, \alpha_1 + r_2 d, \alpha_1 + r_3 d$$

(2)

$$(\alpha_1 + r_2 d)^r = (\alpha_1 + r_1 d)(\alpha_1 + r_3 d)$$

$$\rightarrow \alpha^r + r_2 d^r + r_1 r_3 d = \alpha^r + r_1 \alpha d + r_3 d^r$$

$$\rightarrow r_2 d^r = -r_1 \alpha d \quad \frac{d \neq 0}{d \neq 0} \rightarrow r_2 d = -r_1 \alpha \rightarrow d = \boxed{\frac{-\alpha}{r_2}}$$

(2)

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$$\boxed{d=0} \rightarrow d = \boxed{0}$$

$$\alpha_1 + d, \alpha_1 + r_2 d, \alpha_1 + r_3 d$$

(3)

$$(\alpha_1 + r_2 d)^r = (\alpha_1 + r_1 d)(\alpha_1 + r_3 d)$$

$$\rightarrow \alpha^r + r_2 d^r + r_1 r_3 d = \alpha^r + r_1 \alpha d + r_3 d^r$$

$$\rightarrow r_2 d^r = r_1 \alpha d \quad \frac{d \neq 0}{d \neq 0} \rightarrow d = \alpha \quad (3) \quad \checkmark$$

$$\rightarrow r_1 \alpha, r_2 \alpha, r_3 \alpha \xrightarrow{r_1 = \frac{1}{r_2}} \frac{1}{r_2}, \frac{1}{r_2}, 1 \rightarrow \alpha q^{n-1} = \left(\frac{1}{r_2}\right) (r_2)^{n-1}$$

$$\xrightarrow{n=1} r_2^{-r_1} \times r_2^q = r_2^q = 1 \times 1$$

$$r_2 \alpha q, r_2 \alpha q^r, \alpha q^r$$

(4)

$$r_2 \alpha q^r = r_2 \alpha q + \alpha q^r \rightarrow r_2 q^r = r_2 q + q^r \xrightarrow{q \neq 0} r_2 q = r_2 + q^r$$

$$\rightarrow q^r - r_2 q + r_2 \rightarrow (q - r_2)(q - 1)$$

$$\rightarrow \sqrt{q = r_2}$$

$$\{q = 1\} \times \text{بعض قيم}$$

(4)

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$$1 \quad 2, \frac{1}{f}, \dots \Rightarrow \alpha_1 + (n-1)d \xrightarrow{d=-\frac{1}{f}} 2 + (n-1) \times \left(-\frac{1}{f}\right) \quad (9)$$

$$2 \quad \alpha_f + x, \alpha_n + x, \alpha_{1r} + x \rightarrow -\frac{1}{f}n + \frac{9}{f}$$

$$3 \quad \frac{d}{f} + x, \frac{1}{f} + x, -1 + x$$

$$4 \quad \left(\frac{1}{f} + x\right)^r = \left(x + \frac{d}{f}\right)(x-1) \rightarrow x^r + \frac{1}{f}x + \frac{1}{f} = x^r + \frac{x}{f} - \frac{d}{f}$$

$$6 \quad \rightarrow x = -\frac{21}{f} \rightarrow -\frac{19}{f}, -\frac{2}{f}, -\frac{2d}{f} \rightarrow -f, -d, -\frac{2d}{f}$$

$$7 \quad q = \frac{-d}{-f} = \frac{-\frac{2d}{f}}{-\frac{2d}{f}} = \boxed{\frac{d}{f}}$$

$$9 \quad a + aq^r + aq^s = Vr \quad (10)$$

$$10 \quad \alpha_1 = \alpha = t \rightarrow t_1, \quad m+n=s+r \rightarrow \alpha_m \times \alpha_n = \alpha_s \times \alpha_r$$

$$11 \quad \alpha_f \alpha_q^r = t + d \rightarrow t_r \rightarrow \alpha_v \times \alpha_1 = \alpha_f \times \alpha_r$$

$$12 \quad \alpha_r \alpha_q^s = t + qd \rightarrow t_1 \rightarrow (t + qd)(t) = (t + d)^r$$

$$13 \quad \rightarrow \frac{1}{f} + qd = \frac{1}{f} + d + \frac{2}{f}d$$

$$14 \quad \rightarrow qd = \frac{2}{f}d + d^r$$

$$\rightarrow qt = r + d \rightarrow d = Vt$$

$$15 \quad \alpha_1 + \alpha_f + \alpha_v = Vr \rightarrow t + t + \frac{Vt}{f} + t + qd = Vr$$

$$16 \quad \frac{d=Vt}{Vr} \rightarrow Vr + t = Vr \rightarrow t = 1, \quad \boxed{d = V}$$

$$17 \quad t_r - t_1 = d \rightarrow \Lambda - 1 = V$$