

$$b = \frac{a+c}{r} \rightarrow \frac{1+5r}{r} = 32/5 = (A)^{(19)}$$

$$b^r = ac \rightarrow b^r = 5r \rightarrow b = \pm 1 \in (B)$$

$$A+B =$$

$$32/5 + 1 = 37/5$$

$$32/5 - 1 = 27/5$$

$$-2r, -2r/5, \dots \quad d = \frac{1}{r} \quad (5)$$

$$a_n = \frac{1}{r}n - 2r/5$$

$$a_{101} = 25/5 - 2r/5$$

(1)

$$12\lambda, a_r, \dots$$

$$a_1 = 12\lambda$$

$$a_n = a_1 q^{n-1} = 1 \rightarrow 12\lambda q^{n-1} = 1 \rightarrow q^n = \frac{1}{12\lambda}$$

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

$$a+r, a+s, a+l$$

$$a+3s+d+12d = a+1s+d+12a+2da \leftarrow b^r = ac$$

$$20d + 11ad - 10da = 0$$

$$2d(10d+a) = 0 \quad d \neq 0$$

$$C_1 \rightarrow d = -\frac{a}{10}$$

$$C_2 \rightarrow q = \frac{1}{r} / 1$$

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(1)

$$a, aq, aq^r$$

$$((aq)^r)^r = 5r \rightarrow (aq)^r = (r) \quad aq = r$$

$$a = \frac{r}{q}$$

$$a + aq + aq^r = 21$$

$$a + aq^r = 17$$

$$\frac{r}{q} + rq = 17 \rightarrow r + rq^2 = 17q$$

$$rq^2 - 17q + r = 0$$

$$q = \frac{r}{17} \checkmark$$

$$b^r = ac \rightarrow 5r^r = r^r + 5r^{r^2} - 2r^r - 1 \quad (2)$$

$$r^{r^2} - 2r^r - 1 = 0$$

$$(r^r - 2)(r^r + 1) = 0$$

$$r = \pm 2$$

$$q > 0$$

$$r = +2 \rightarrow 1, 4, 16, \dots$$

$$\times \frac{1}{4} \quad \times \frac{1}{4}$$

$$S_n = 1 \left(\frac{1 - (\frac{1}{4})^n}{1 - \frac{1}{4}} \right) = 4(1 - \frac{1}{4^n}) = 4 - \frac{1}{4^{n-1}}$$

$$15 - \frac{1}{4} = \frac{127}{4}$$

$$a_1 = 30$$

(3)

$$S_n = a_1 \left(\frac{q^n - 1}{q - 1} \right) = 30 \left(\frac{q^n - 1}{q - 1} \right)$$

$$2, \frac{1}{2}, \dots, \alpha_n = -\frac{1}{2}n + \frac{9}{2} \quad (9)$$

$$\alpha_5 = -\frac{1}{2} + \frac{9}{2} = \frac{8}{2} \rightarrow \frac{8}{2} + 2c = b_1$$

$$\alpha_1 = -\frac{1}{2} + \frac{9}{2} = \frac{8}{2} \rightarrow \frac{8}{2} + 2c = b_1$$

$$\alpha_{11} = -\frac{11}{2} + \frac{9}{2} = -1 \rightarrow -1 + 2c = b_1$$

$$b_1 = 2c$$

$$\frac{1}{2} + 2c + \frac{1}{2}c = \frac{8}{2} + \frac{8}{2}c - c - \frac{8}{2}$$

$$\frac{1}{2} + \frac{8}{2} = \frac{1}{2}c - \frac{1}{2}c$$

$$-\frac{1}{2}c = \frac{7}{2} \rightarrow c = \frac{7}{-1} = \boxed{-7}$$

$$C_{\text{شماره}} \Rightarrow -7, -8, -\frac{7}{2}, \dots$$

$$\boxed{q = \frac{8}{2}}$$

$$\alpha_1 + \alpha q^3 + \alpha q^5 = 11 \quad (10)$$

$$\alpha_1 = 1$$

$$\alpha_5 = 1 \Rightarrow \alpha q^5 = a + d \Rightarrow d = a(q^5 - 1)$$

$$\alpha_5 = 1 \rightarrow a + q(a(q^5 - 1)) = \alpha q^5 =$$

$$q q^5 - 1 = q^6$$

$$\downarrow q^6 = x$$

$$x^2 - 9x + 1 = (x-1)(x-1) = 0$$

$$d = 1(1^5 - 1) = \boxed{0}$$

$$x < 1$$

$$\alpha_1 = 1$$

$$a, a+d, a+2d, a+3d \quad (11)$$

$$\frac{b_1}{b_1} = \frac{b_2}{b_2} = q \rightarrow \frac{a+2d}{a+d} = \frac{a+3d}{a+2d}$$

$$a^2 + 2ad + 2d^2 = a^2 + 2ad + 3d^2$$

$$2d^2 = 3d^2 \rightarrow d = 0$$

$$C_{\text{شماره}} = 2a, 4a, 6a$$

$$q = 2$$

$$\alpha_1 = 2a = \frac{1}{2} \rightarrow a = \frac{1}{4}$$

$$C_{\text{شماره}} = \frac{1}{2}, \frac{1}{4}, 1, \dots$$

$$\alpha_n = \frac{1}{2} (2)^{n-1} \rightarrow \alpha_{10} = \frac{1}{2} (2^9) = \boxed{2^8}$$

$$aq, 2aq^2, aq^3 \quad (12)$$

$$q^2 - 5q + 1 = 0$$

$$q = \boxed{2 \pm \sqrt{3}}$$