

کلاس در ریاضی

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 ۵۲ امیرین

$$\frac{a}{r} \times a \times ar = a^3 = 9r \rightarrow a = r \rightarrow \frac{r}{r} + r + r^2 = 11 \rightarrow r^2 + r + r = 11r$$

$$r^2 - 14r + 14 = 0 \quad r^2 - 14r + 14 = 0 \quad (r-14)(r-1) = 0 \rightarrow \frac{1}{r} \text{ و } r$$

مسئله اول : مساله دوم

$$a_1^3 = a_1 \times a_2 \rightarrow (r_1)^3 = (a^3 + r)(a^2 - r) \rightarrow r a^2 = a^3 + r a^2 - 1$$

$$a^3 - r a^2 - 1 = 0 \quad (a - r)(a + r) = 0$$

$\frac{a-r}{r} = \frac{a+r}{-r} \rightarrow a^2 = -r \times \frac{a+r}{r} = -\frac{a(r+r)}{r} = -\frac{a(2r)}{r} = -2a \rightarrow a^2 = -2a \rightarrow a = \pm 2$

$$a = 2 : a_1 = 1, a_2 = 5, a_3 = 2 \rightarrow r = \frac{1}{2} \checkmark$$

$$a = -2 : a_1 = 1, a_2 = -5, a_3 = 2 \rightarrow r = -\frac{1}{2} \times \frac{1}{2} = -\frac{1}{4}$$

مسئله اول : مساله دوم

$$S_n = a_1 \left(\frac{1 - r^n}{1 - r} \right) \rightarrow S_4 = 1 \times \frac{1 - \left(\frac{1}{2}\right)^4}{1 - \frac{1}{2}} = 1 \times \frac{1 - \frac{1}{16}}{\frac{1}{2}} = \frac{15}{16} \times 2 = \frac{15}{8}$$

$$a + ar + ar^2 + ar^3 + ar^4 = ?$$

$$a(1 + r + r^2 + r^3 + r^4) = 15 \times \frac{1}{2} = \frac{15}{2}$$

$\frac{15}{2}$

$$a = -\frac{r_1}{r} \Rightarrow -\frac{14}{r}, -\frac{r_0}{r}, -\frac{r_0}{r} \xrightarrow{\text{میانگین}} \frac{-\frac{r_0}{r}}{-\frac{14}{r}} = \frac{-r_0}{-14} = r \Rightarrow r = \frac{d}{f} \quad \checkmark$$

$$a_1 + a_f + a_v = V^k \rightarrow a_1 + ar^3 + ar^4 = V^k \rightarrow a(1 + r^3 + r^4) = V^k \quad (10)$$

$$a_1 = t_1, \quad a_f = t_f \rightarrow a_1 + d, \quad a_v = t_{10} = a + 9d$$

$$((\cancel{a}r^4 = a_1 + 9(a(r^3 - 1)) \Rightarrow a_1 + 9ar^3 - 9a = a(1 + 9r^3 - 9) = a(9r^3 - 1))$$

$$ar^4 = a(9r^3 - 1) \rightarrow r^4 = 9r^3 - 1 \rightarrow r^4 - 9r^3 + 1 = 0 \rightarrow \underbrace{(r^3 - 1)}_{r^3=1} \underbrace{(r^3 - 1)}_{r^3=1} = 0$$

$$r^3 = 1 \rightarrow \underline{r=1}, \quad r^3 = 1 \rightarrow \underline{r=1} \quad d = a(r^3 - 1) \rightarrow d = a(1 - 1) = d = \underline{Va_1}$$

$$a + ar^3 + ar^4 = V^k \rightarrow a + 1a + 4fa = V^ka = V^k$$

$$\Rightarrow \boxed{a=1} \rightarrow d = V(1) \Rightarrow \boxed{d=V}$$

اگر دنباله غیر ثابت باشد

اگر دنباله ثابت باشد $r=1 \leftarrow d=0$