

کلاس دوم ریاضی

کتاب ریاضی

1810

$$a + aq + aq^2 = 11 \Rightarrow a(1 + q + q^2) = 11 \Rightarrow a = \frac{11}{1 + q + q^2}$$

$$\frac{11}{1} = \frac{11q}{1 + q + q^2}$$

$$a \times aq \times aq^2 = 121 \Rightarrow a^3 q^3 = 121 \Rightarrow (aq)^3 = 121 \Rightarrow aq = \sqrt[3]{121}$$

$$11q = 11(1 + q + q^2) \quad 11q = 11 + 11q + 11q^2$$

$$11q^2 + 11q + 11 - 11q = 0$$

$$11q^2 - 11q + 11 = 0$$

$$q = \frac{11 \pm \sqrt{121 - 121}}{22} = \frac{11 \pm \sqrt{0}}{22} = \frac{11}{22} = \frac{1}{2}$$

$$aq = \frac{11}{2} = 5.5$$

$$q = \frac{1}{2} = \frac{1}{2}$$

$$x^2 + 1, x^2 - 1 \rightarrow \Delta, \nabla, \dots$$

$$S_n = a \frac{1 - q^n}{1 - q} = 11 \frac{1 - (\frac{1}{2})^n}{1 - \frac{1}{2}} = 11 \times \frac{1 - \frac{1}{2^n}}{\frac{1}{2}} = 11 \times 2 \times (1 - \frac{1}{2^n}) = 22(1 - \frac{1}{2^n})$$

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

$$x^4 = x^4 + x^2 - 1 \Rightarrow x^4 - x^2 - 1 = 0$$

$$x^2 = y \quad y^2 - y - 1 = 0$$

$$(y - \frac{1}{2})^2 = \frac{5}{4}$$

$$y = \frac{1}{2} \pm \frac{\sqrt{5}}{2}$$

$$x = \pm \sqrt{y}$$

$$1 + q + q^2 + q^3 + q^4 = \frac{121}{11}$$

$$\frac{q^5 - 1}{q - 1} = \frac{121}{11}$$

$$S_5 = a(1 + q + q^2 + q^3 + q^4) = S_5 = 11 \times \frac{121}{11} = 121$$

$$d = \frac{q^2 - 1}{q + 1} = \frac{q^2 - 1}{q + 1} = \frac{(q - 1)(q + 1)}{q + 1} = q - 1$$

$$A = a_1 = a + rd \Rightarrow 1 + \frac{1}{2} \times \frac{1}{2} = \frac{3}{2}$$

$$B = aq^2 \Rightarrow 1 \times \frac{1}{4} = \frac{1}{4}$$

$$A + B = \frac{3}{2} + \frac{1}{4} = \frac{7}{4}$$

$$q = \frac{1}{2} \Rightarrow \frac{1}{2} = \frac{1}{2} \Rightarrow q = \frac{1}{2} \Rightarrow a_1 \times q^2 = 1 \times (\frac{1}{2})^2 = \frac{1}{4}$$

$$d = -\frac{q^2}{q} = -\frac{1}{2} = -\frac{1}{2}$$

$$a_{101} = aq^2$$

$$1 = 11 \times \frac{1}{2}$$

$$q^2 = \frac{1}{11} \Rightarrow \sqrt{\frac{1}{11}} = \frac{1}{\sqrt{11}}$$

$$a_{101} = a + 100d \Rightarrow -\frac{1}{2} + 100 \times \frac{1}{2} = 1$$

$$a + d, a + 2d, a + 3d$$

$$a_1^2 = a_2 \times a_3 \Rightarrow (a + d)^2 = (a + 2d)(a + 3d)$$

$$a^2 + 2ad + d^2 = a^2 + 5ad + 6d^2$$

$$2ad + d^2 = 5ad + 6d^2$$

$$d(a + 10d) = 0$$

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

د = صفر به سمت راست و چپ از صفر

$$a+d, a+vd, a+vd \Rightarrow \underbrace{va, fa, 1a}_{xv \quad xv} \quad \text{result} = \left(\frac{1}{f}\right)$$

(V)

$$(a+vd)^v = (a+d)(a+vd)$$

$$vd = \frac{1}{f} \times v = \frac{vd}{f} \Rightarrow \boxed{f=1}$$

$$a^v + vd^v + vad = a^v + vad + vd^v$$

$$vd^v - vad = 0$$

$$vd(d-a) = 0 \Rightarrow \boxed{d=a}$$

(5)

$$vaq, var, ar^v$$

(^)

$$vaq^v = \frac{vaq + aq^v}{v}$$

$$vaq^v = vaq + aq^v$$

$$q^v = vq + q^v$$

$$q^v - vq - q^v = 0$$

$$q(q^v - vq - q^v) = 0$$

$$(q-v)(q-1)$$

$$v=0 \quad \boxed{q=v} \quad \begin{matrix} v=1 \\ x \end{matrix}$$

(5)

$$d = a_v - a_i = \frac{v}{f} - \frac{v}{1+f} = -\frac{1}{f}$$

$$a_f = v + \frac{v}{f}x - \frac{1}{f} = \frac{d}{f}$$

$$a_n = v + vx - \frac{1}{f} = \frac{1}{f}$$

$$a_{1v} = v + vx - \frac{1}{f} = -1$$

$$a_f+k, a_n+k, a_{1v}+k$$

$$(a_n+k)^v = (a_f+k)(a_{1v}+k)$$

$$\left(\frac{1}{f}+k\right)^v = \left(\frac{d}{f}+k\right)(-1+k)$$

$$k^v + \frac{1}{f}k + \frac{1}{f^2} = k^v + \frac{1}{f}k - \frac{d}{f^2} - \frac{1}{f}$$

$$\frac{1}{f}k = -\frac{v}{1+f} \Rightarrow \boxed{k = -\frac{v}{1+f}}$$

$$d = \frac{a_n+k}{a_f+k} = \frac{\frac{1}{f} - \frac{v}{f} - \frac{1}{f^2}}{\frac{d}{f} - \frac{v}{f} - \frac{1}{f}} = \frac{-d}{-f} \Rightarrow \boxed{\frac{d}{f}}$$

(9)

(5)

$$a + aq^v + aq^v = v^v \Rightarrow a($$

$$a_f = aq^v \Rightarrow a+d = aq^v \Rightarrow d = a(q^v-1)$$

$$aq^v = a + q[a(q^v-1)]$$

$$aq^v = a(qq^v-1)$$

$$x^v = qx - 1$$

$$x^v - qx + 1 = 0 \quad (x-1)(x-1) = 0$$

$$\begin{matrix} x=1 & x=1 \\ \downarrow & \downarrow \\ \boxed{q=1} & \boxed{q=v} \end{matrix}$$

$$q=1 \rightarrow \begin{matrix} va = v^v \\ a = \frac{v^v}{v} \end{matrix} \rightarrow aq^v - a = d$$

$$q=1 \rightarrow d = \frac{v^v}{v} - \frac{v^v}{v} = 0$$

$$a(1+q^v+q^v) = v^v$$

$$a\left(\frac{1+1+1}{v}\right) = v^v$$

$$a=1$$

$$d = 1\left(\frac{1-1}{v}\right) = \boxed{\frac{1}{v}}$$

(1, 1, 1)

(10)