

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

$$a \times aq \times aq^2 = 1 \Rightarrow a^3 q^3 = 1 \Rightarrow (aq)^3 = 1 \Rightarrow aq = 1$$

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

$$10q = 1 + q^2$$

$$10q - 1 - q^2 = 0$$

$$q = \frac{10 \pm \sqrt{100 - 4}}{2} = \frac{10 \pm \sqrt{96}}{2} = \frac{10 \pm 4\sqrt{6}}{2} = 5 \pm 2\sqrt{6}$$

$$aq = 1 \Rightarrow q = \frac{1}{a} = \frac{1}{11}$$

$$x^2 + 1, x^2 - 1 \rightarrow \Lambda, 1, 1, \dots$$

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

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

$$x^4 - 1 - 1 = 0$$

$$(x - 1)(x + 1)$$

$$x = 1$$

$$x = -1$$

$$1 + q + q^2 + q^3 + q^4 = \frac{111}{11}$$

$$\frac{q^5 - 1}{q - 1} = \frac{111}{11}$$

$$S_5 = a(1 + q + q^2 + q^3 + q^4) = S_5 = 111 \times \frac{111}{11} = 111 \times 11 = 1221$$

$$d = \frac{11 - 1}{10 + 1} = \frac{10}{11} = 10/11$$

$$A = a_1 = a + 10d \Rightarrow 1 + 10 \times \frac{10}{11} = 111/11$$

$$B = aq^2 = 1 \times \frac{1}{11} = \frac{1}{11}$$

$$A + B = 111/11 + 1/11 = 112/11$$

$$q = \frac{11}{1} = 11$$

$$d = -\frac{10}{11} = -10/11$$

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

$$1 = 111 \times \frac{1}{11}$$

$$q^2 = \frac{1}{111} = \frac{1}{111}$$

$$a_{101} = a + 100d \Rightarrow -111 + 100 \times \frac{1}{11} = 1$$

$$a + 10d, a + 20d, a + 30d$$

$$a_1^2 = a_2 \times a_3 \Rightarrow (a + 10d)^2 = (a + 20d)(a + 30d)$$

$$a^2 + 20ad + 100d^2 = a^2 + 50ad + 600d^2$$

$$100d^2 - 30ad = 0$$

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

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

(1)

(2)

(3)

(4)

(5)

(6)

$$a+d, a+vd, a+vd \Rightarrow \underbrace{va, fa, 1a}_{x^r \quad x^r} \quad \text{erhöhen} = \left(\frac{1}{f}\right) \quad q=v \quad \text{siehe}$$

(V)

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

$$f \cdot d = \frac{1}{f} \times v^q = \frac{v \cdot f}{f} = \boxed{1 \cdot 1}$$

$$a^r + qd^r + vad = a^r + vad + vd^r$$

$$vd^r - vad = 0$$

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

$$vaq^r, var^r, ar^r$$

(^)

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

$$vaq^r = \frac{vaq}{a} + \frac{aq^r}{a}$$

$$q^r = vq + q^r$$

$$q^r - vq - q^r = 0$$

$$q(q^r - vq + 1) = 0$$

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

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

$$d = a_r - a_i = \frac{v}{f} - \frac{v}{1 \cdot f} = -\frac{1}{f}$$

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

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

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

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

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

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

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

$$\frac{1}{f}k = -\frac{v}{1 \cdot f} \quad \boxed{k = -\frac{v}{f}}$$

$$d = \frac{a_n + k}{a_f + k} = \frac{\frac{1}{f} - \frac{v}{f} - \frac{v}{f}}{\frac{d}{f} - \frac{v}{f} - \frac{1}{f}} = \frac{-d}{-f} = \boxed{\frac{d}{f}} \quad (9)$$

$$a + aq^r + aq^r = vr \Rightarrow a($$

(10)

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

$$aq^r = a + \underbrace{q[a(q^r - 1)]}_d$$

$$q^r = x$$

$$aq^r = a(q^r - 1)$$

$$x^r = qx - 1$$

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

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

$$a(1 + \underbrace{q^r}_v + \underbrace{q^r}_v) = vr$$

$$a(\underbrace{1+\Lambda+1}_{vr}) = vr$$

$$a=1$$

$$d = 1(\underbrace{1-1}_v) = \boxed{v}$$