

(17)

$$A_2 = -A_{-1} q^{-1} = -(q A_1) q^{-1} = -A_1$$

for $n > 0$

$$A_n = -A_{n-3} q^{n-3}$$

$$A_{3n} = -A_{3(n-1)} q^{3(n-1)}$$

$$= (-1) (-A_{3(n-2)}) q^{3(n-1)+3(n-2)}$$

$$= (-1)^n q^{3((n-1)+(n-2)+\dots+2+1+0)} A_0$$

$$= (-1)^n q^{3n(n-1)/2} A_0$$

$$A_{-3n} = q^{+3n} A_{3n} = (-1)^n q^{3n(n+1)/2} A_0 \quad \text{for } n > 0.$$

Hence $A_{3n} = (-1)^n q^{3n(n-1)/2} A_0$ for all n .

$$A_{3n+1} = -A_{3(n-1)+1} q$$

$$= (-1)^n A_1 q^{(3(n-1)+1) + (3(n-2)+1) + \dots + (3 \cdot 0 + 1)}$$

$$= (-1)^n A_1 q^{3n(n-1)/2 + n} = (-1)^n A_1 q^{n(3n-1)/2}$$

for $n > 0$.

for $n > 0$

$$A_{3n+2} = -A_{3(n-1)+2} q^{3(n-1)+2}$$

$$= (-1)^n A_2 q^{3(n-1)+2 + 3(n-2)+2 + \dots + 3(0)+2}$$