

$$CG_{2k}(z) = \prod_{n=0}^{\infty} (1 + zq^{n+1})^{2k} (1 + z^{-1}q^n)^{2k} \equiv \prod_{n=0}^{\infty} (1 + z^2q^{2n+2})^k (1 + z^{-2}q^{2n})^k \pmod{2}.$$