For a Geometric progression defined as follows

$$x[n] = x[0]\, r^n u[n] \tag{1}$$

$$X(z) = \sum_{n=-\infty}^{\infty} x[n]\, z^{-n} \tag{2}$$

$$= \sum_{n=0}^{\infty} x[0]\, r^n z^{-n} \tag{3}$$

$$= \sum_{n=0}^{\infty} x[0] \left(rz^{-1}\right)^n \tag{4}$$

For $\left|rz^{-1}\right| < 1$

$$X(z) = \frac{x[0]}{1 - rz^{-1}} \tag{5}$$