Geometric Gradient Factors ($P_g/A$)

A Geometric gradient is when the periodic payment increases (or decreases) by a constant percentage. For example, if the first payment = $100 and the geometric gradient for successive payments is 10%: $A_1 = 100, g = 0.1$ or 10%

\[
A_1 = 100 \\
A_2 = 100(1+g) \\
A_3 = 100(1+g)^2 \\
A_n = 100(1+g)^{n-1}
\]
Geometric Gradient Factors \((P_g/A)\)

To find the Present Worth, \(P_g\), for a geometric gradient cash flow \(G\):

\[
P_g = A \left[ \frac{1 - \left( \frac{1+g}{1+i} \right)^n}{i-g} \right] \quad g \neq i
\]

\[
P_g = A \left[ \frac{n}{1+i} \right] \quad g = i
\]