Non-Interest Theory Facts

1. Sum of an Arithmetic Series = $\left(\frac{First\ Term + Last\ Term}{2}\right)\left(\begin{matrix}Number\\ of\ Terms\end{matrix}\right)$

   Example: 4+7+10+13+16+19 = $\left(\frac{4+19}{2}\right)(6) = 69$

2. Sum of a Geometric Series = $\frac{First\ Term - Next\ Term\ after\ the\ last\ term}{1 - ratio}$

   Example: $1 + s + s^2 + \ldots + s^n = \frac{1 - s^{n+1}}{1 - s}$

3. Quadratic Equation

   If $ax^2 + bx + c = 0$ *then* $x = \frac{-b \pm \sqrt{b^2 - 4ac}}{2a}$

4. $a^2 - b^2 = (a - b)(a + b)$

5. $(ax + b)(ax + b) = a^2x^2 + 2abx + b^2$

6. $(ax - b)(ax - b) = a^2x^2 - 2abx + b^2$