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3% continuously compounded

$$a_1 = 500$$

$$a_2 = 500 + 500e^{.03/12}$$

$$a_3 = 500 + 500e^{.03/12} + 500(e^{.03/12})^2$$

$$a_3 = 500 + 500e^{.03/12}$$

2 years \Rightarrow 24 time elapsed.

$$g_n = 500(e^{0.03/12})^{n-1}$$

$$\sum_{k=1}^{24} g_k = \frac{500(1 - (e^{0.03/12})^{24})}{1 - e^{0.03/12}}$$

$$(24) \quad a_1 = 250 \text{ mg.}$$

$$a_2 = 250 \text{ mg} + 0.04(250)^2$$

$$a_3 = 250 + 0.04(250) + (0.04)^2(250)$$

$$a_4 = 250 + 0.04(250) + (0.04)^2(250) + (0.04)^3(250)$$

$$g_n = 250(0.04)^{n-1}$$

$$\sum_{k=1}^3 g_n = \frac{250(1-r^3)}{1-r} = \frac{250(1-0.04^3)}{1-0.04}$$

$$\sum_{k=1}^{\infty} g_n = \frac{250(1)}{1-0.04} = \frac{250}{0.96} \approx 260.42$$

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$$3 + \frac{3}{e^{0.07}} + \frac{3}{(e^{0.07})^2} + \frac{3}{(e^{0.07})^3} + \dots + \frac{3}{(e^{0.07})^9}$$
$$\sum_{k=1}^{10} 3 \left(\frac{1}{e^{0.07}} \right)^{k-1} = 3 \frac{(1 - r^{10})}{1 - r}$$
$$\left\{ \begin{array}{l} r = \frac{1}{e^{0.07}} \\ = e^{-0.07} \end{array} \right.$$

