Problem 1

(a)

Since this is not an infinite series, we cannot use identities derived in the book. Instead, we must do our own. We must solve for c in $\sum_{k=1}^{10} ck^2 = 1.0$.

$$\begin{aligned} \sum_{k=1}^{10} ck^2 &= c \cdot \frac{10(10+1)(2 \cdot 10+1)}{6} \\ &= c \cdot 385 \\ \Rightarrow \quad c &= \frac{1}{385} \end{aligned}$$