

### 1 Sum Shift

In each of the following sums, shift the index  $n \rightarrow n + 2$ . Don't forget to shift the limits of the sum as well. Then write out all of the terms in the sum (if the sum has a finite number of terms) or the first five terms in the sum (if the sum has an infinite number of terms) and convince yourself that the two different expressions for each sum are the same:

(a)

$$\sum_{n=0}^3 n \tag{1}$$

(b)

$$\sum_{n=1}^5 e^{in\phi} \tag{2}$$

(c)

$$\sum_{n=0}^{\infty} a_n n(n-1)z^{n-2} \tag{3}$$