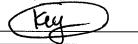
Name:



Show all work clearly and in order. Please box your answers.

1. Shift the following power series to start at n=1

(a) 
$$\sum_{n=0}^{\infty} nc_{n+1}x^{n+4} = \sum_{n=1}^{\infty} (n-1) C_n x^{n+3}$$

(b) 
$$\sum_{n=2}^{\infty} n(n-1)c_{n-1}x^n = \sum_{n=1}^{\infty} (n+1)(n) C_n X^{n+1}$$

2. Combine the following two power series to form a single power series

$$\sum_{n=0}^{\infty} nc_{n+1}x^{n} + \sum_{n=2}^{\infty} n(n-1)c_{n}x^{n-1}$$

$$\sum_{n=0}^{\infty} nc_{n+1}x^{n} + \sum_{n=2}^{\infty} n(n-1)c_{n}x^{n-1}$$

$$\sum_{n=0}^{\infty} nc_{n+1}x^{n} + \sum_{n=2}^{\infty} n(n-1)(n \times n^{n-1})$$

$$\sum_{n=0}^{\infty} (n-1)c_{n}x^{n-1} + \sum_{n=2}^{\infty} n(n-1)(n \times n^{n-1})$$

$$\sum_{n=2}^{\infty} (n-1)(n + n(n-1)c_{n}) = \sum_{n=2}^{\infty} (n-1)(n+n)c_{n}x^{n-1}$$

$$\sum_{n=2}^{\infty} (n-1)(n+n)c_{n}x^{n-1}$$

3. Combine the following two power series to form a single power series

$$\frac{2c_{1} + \sum_{n=0}^{\infty} 2(n+z)(n+2) + \sum_{n=0}^{\infty} 6(n) \times \frac{n+1}{2}}{2c_{1} + \sum_{n=0}^{\infty} [2(n+z)(n+z) + 6(n)] \times \frac{n+1}{2}}$$