

$$\text{var} \left( \sum_{i=1}^n X_i \right) = n \text{var}(X_1)$$

$$+ 2 \sum_{i=1}^{n-1} \sum_{j=i+1}^n \text{cov}(X_i, X_j)$$

$$= n \text{var}(X_1) + 2 \sum_{i=1}^{n-1} \sum_{k=1}^{n-i} \text{cov}(X_i, X_{i+k})$$

$j = i + k$   
 $k = j - i$

$$= n \text{var}(X_1) + 2 \sum_{k=1}^{n-1} \sum_{i=1}^{n-k} \text{cov}(X_i, X_{i+k}) = n \text{var}(X_1) = 2 \sum_{k=1}^{n-1} (n-k)$$

$$P(X \in [\lambda, \infty)) = Y \leq 4$$

