

$$= \frac{1}{4} \left[\text{Diagram 1} \right] - \frac{1}{4N} \left[\text{Diagram 2} \right] - \frac{1}{4N} \left[\text{Diagram 3} \right] + \frac{1}{4N^2} \left[\text{Diagram 4} \right]$$

$$= \frac{N^2-2}{2N} \left[\text{Diagram 5} \right] + \frac{N^2-1}{4N^2} \left[\text{Diagram 6} \right]$$