

9-10. Why do we not need to be careful to write  $\frac{1}{2} [\mathbf{p}_1 \exp(-i\mathbf{k} \cdot \mathbf{x}) + \exp(-i\mathbf{k} \cdot \mathbf{x})\mathbf{p}_1]$  in the matrix elements?

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In this case  $\mathbf{p}_1$  is not an operator, hence  $\mathbf{p}_1$  and the exponential commute.