

1. Read Griffiths sections 2-1 and 2-2. Did you read all the pages?

You may use Mathematica or a similar program to CHECK your answers, but do the work by hand and show all steps. i is the square root of -1 .

2. Write $(1 + i)^{80}$ as $x + iy$ and as $re^{i\theta}$. Hint: do NOT perform 79 multiplications! Show the method as well as the answer.
3. Find three possible values (out of the infinite set) of i^i .
4. Find the eigenvalues and eigenvectors for the matrix

$$M = \begin{pmatrix} 1 & 0 & 1 \\ 2 & 2 & 2 \\ 2 & 1 & 0 \end{pmatrix}$$