

Question 1

Consider the solution to the azimuthal part of the TISE for the hydrogen atom,

$$\Phi(\phi) = e^{i\sqrt{D}\phi}.$$

Which of the following possibilities guarantee that the function matches correctly at $\phi = 0$ and $\phi = 2\pi$?

1. $\sqrt{D} = 1/2$.
2. $\sqrt{D} = 1$.
3. $\sqrt{D} = 3/2$.
4. $\sqrt{D} = 1/2$ and $\sqrt{D} = 1$.
5. $\sqrt{D} = 3/2$ and $\sqrt{D} = 1$.
6. $\sqrt{D} = 1/2$ and $\sqrt{D} = 1$ and $\sqrt{D} = 3/2$.