

Question 1

A partial energy level diagram for a system is as illustrated. The energies are in units of 10^{-19} J.

$$E_3 = 8.0 \text{ —————}$$

$$E_2 = 4.0 \text{ —————}$$

$$E_1 = 2.0 \text{ —————}$$

Which transition/jump results in emission of light with the largest wavelength (based only on the illustrated energy levels)?

1. $1 \rightarrow 2$
2. $2 \rightarrow 1$
3. $3 \rightarrow 1$
4. $1 \rightarrow 3$
5. $3 \rightarrow 2$

Question 2

A particle of mass m is contained in a box of length L . The energy of the particle is measured.

Which of the following is/are a possible outcome of the energy measurement?

1. $\frac{h^2}{8mL^2}$

2. $2 \frac{h^2}{8mL^2}$

3. $4 \frac{h^2}{8mL^2}$

4. $6 \frac{h^2}{8mL^2}$

5. $10 \frac{h^2}{8mL^2}$