



The above graph shows an artificial wave function for a particle in 1D. (The wave function is zero for x less than 0 and greater than 5.) The next three questions refer to the graph.

Q1: For the wave function to be normalized, determine the vertical scale, c (grid size).
 (A) $1/2$ (B) $1/4$ (C) $1/8$ (D) $1/16$ (E) $1/32$

Q2: What is the probability the particle will be found between $x=2$ and $x=4$?

- (A) $17/64$
- (B) $25/64$
- (C) $5/8$
- (D) $\sqrt{5/8}$
- (E) $13/16$

Q3: The expectation value of x is most probably near

- (A) 1 (B) 2 (C) 3 (D) 4 (E) 5

Q4: The wave function at $t=0$ is given by $\Psi = \frac{1}{2} \psi_1 + c \psi_2$, where ψ_1 and ψ_2 are orthonormal stationary states. What should c be so that Ψ is normalized?

- (A) $1/2$ (B) 1 (C) $3^{1/2}/2$ (D) $3/2$ (E) 0