Unit 1 - How to access the portal

Assignment 0

The due date for submitting this assignment has passed.
As per our records you have not submitted this assignment.

1) \( \cos(2x) \) is an eigenfunction of ________. Here \( p_x \) is momentum operator.  

\[
\begin{array}{c}
\text{ } \\
\text{ } \\
\text{ } \\
\text{ } \\
\text{ } \\
\text{ } \\
\text{ } \\
\end{array}
\]

Due on 2019-02-04, 23:59 IST.

No, the answer is incorrect.
Score: 0
Accepted Answers:

2) For the matrix \[
\begin{pmatrix}
1 & -2 \\
4 & 7
\end{pmatrix}
\] The eigenvalues and eigenvectors are

\[
\begin{array}{c}
\text{ } \\
\text{ } \\
\text{ } \\
\text{ } \\
\end{array}
\]

No, the answer is incorrect.
Score: 0
Accepted Answers:
4) Which of the following wavefunctions are well behaved wavefunction?

- $\psi(x) = e^{\alpha x^2}$, where $\alpha$ is a positive number.
- $\psi(x) = e^{-\alpha x^2}$, where $\alpha$ is a positive number.
- $\psi(x) = \tanh x$
- $\psi(x) = e^{ikx}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
- $[x, p_x^2]$
- $[x, p_x]$

5) The ratio of Compton to de Broglie wavelength for a relativistic electron moving with velocity $v$ will be

- $\sqrt{1 - \frac{v^2}{c^2}}$
- $1 - \frac{v^3}{c^3}$
- $\sqrt{\frac{c^2}{v^2} - 1}$
- $\sqrt{\frac{c^3}{v^2} - 1}$

No, the answer is incorrect.
Score: 0
Accepted Answers:
- $\sqrt{\frac{c^2}{v^2} - 1}$

6) In quantum mechanics,

- $x, v_x$ can be simultaneously determined.
\( x, v_x \) cannot be simultaneously determined.

\( y, v_y \) can be simultaneously determined.

\( y, v_y \) cannot be simultaneously determined.

No, the answer is incorrect.
Score: 0

Accepted Answers:
\( x, v_x \) cannot be simultaneously determined.
\( y, v_y \) can be simultaneously determined.