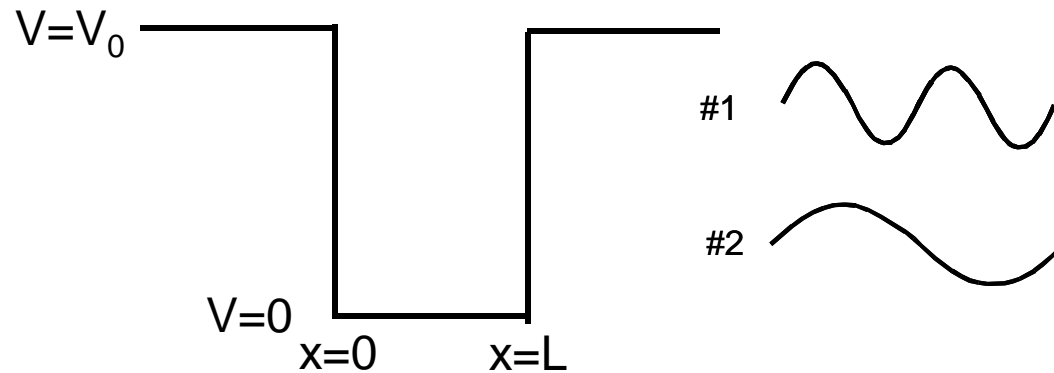$$\psi_n = \sqrt{\frac{2}{L}} \sin\left(\frac{n\pi}{L} x\right)$$

with $n = 1,2,3,...$

Which of the following quantities is exactly determined for an electron in one the states?

(A) Energy   (B) Momentum

(C) Position   (D) None of these

(E) More than one of these

Suppose the energy E of the electron is larger than V_0. Qualitatively how does the wave function looks like inside and outside the potential well?

V=V_0

#1

#2

V=0

x=0   x=L

(A) Inside: #1, outside: #2   (B) Inside: #2, Outside: #1
(C) Inside and outside the same

Suppose the energy E of the electron is smaller than V_0. Which of the two possible solutions do we have to exclude in the region x<0?

$V=V_0$

(A) exp(βx)

(B) exp (-βx)

$V=0$

x=0   x=L
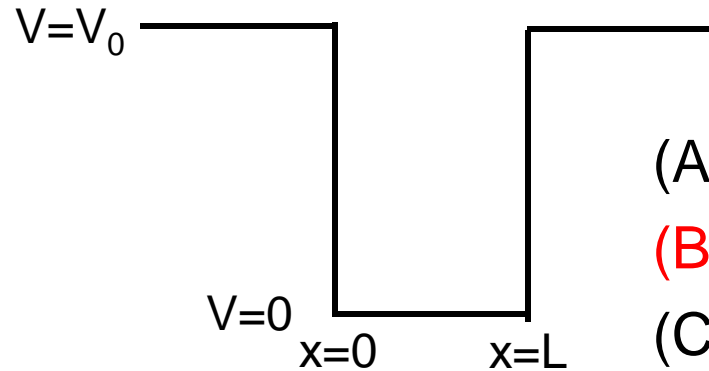
(C) cannot decide

Wave functions in infinite and finite potential well