§1 Question

For a particle in one dimensional $(0 < x < L)$ box, find the wave function at time t if at time $t = 0$ it is given to be [3+3+6]

(a) $f_1(x) = \sin(13\pi x/L)$

(b) $f_2(x) = 3\sin(7\pi x/L) + 21\sin(4\pi x/L) - 3\sin(\pi x/L)$

(c) $f_3(x) = A\sin(12\pi x/L)\cos(7\pi x/L)$

- **Category A** : Marks 10/12
  Wrong sign of energy $\{\imath ET/hbar\}$ in the exponential
- **Category C** : Marks :2/6 Written the product $A\sin(12\pi x/L)\cos(7\pi x/L)$ as sum ofsine terms but no further progress.

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