PHY 341 HW Ch.1b

Do problems 1.9, 1.14, 1.17 (a-c), 2.3, 1.16*; plus the following:

q1-2
The wave function $\Psi(x,0)$ at $t=0$ is given by

$$\Psi(x,0) = c_1\psi_1(x) + c_2\psi_2(x) + c_3\psi_3(x),$$

where ψ_j are stationary states with energies E_j, and c_j the expansion constants ($j = 1,2,3$), respectively.
(a) Is $\Psi(x,0)$ a stationary state? Why?
(b) Write down the wave function at later times t.
(c) If a measurement of energy is made, what are the possible values?

Hints: For Problem 1.9, use the integral formula on the back cover; and for 1.14, consult Eq. (1.25).