Hint for Section 3.6, # 28.

My hint is to follow the hint given in the book.

In a bit more detail: you need to solve two different problems; first, you should solve

$$y'' + y = t.$$

This is easy, and you'll end up with a formula like

$$y = c_1(\text{blah}) + c_2(\text{blah}) + (\text{blah}).$$

This is part of the answer to the problem, the part valid when $t \le \pi$, because that's where the right side of the equation came from: the non-homogeneous term is t when $t \le \pi$. Since $0 < \pi$, the initial conditions ($y(0) = 0$ and $y'(0) = 1$) are relevant to this part of the solution, so apply them to find c_1 and c_2. At this point, you should have a precise equation (no unknown constants or anything) for the solution $y(t)$ that is valid when $t \le \pi$.

Next, you want to solve this:

$$y'' + y = \pi e^{\pi - t}.$$

This will give you another formula, like

$$y = d_1(\text{blah}) + d_2(\text{blah}) + (\text{blah}).$$

This part of the solution is supposed to be valid when $t > \pi$, so it should pick up at $y = \pi$ where the first solution leaves off. If you think about the previous sentence (and a similar sentence in the problem in the book), you will be able to find some initial conditions to apply so that you can pin down d_1 and d_2.