Sec. 2.1 2 It is easy to see

$$\frac{\partial^2}{\partial^2 x}(e^{-\lambda^2 kt}\cos(\lambda x)) = -\lambda^2 e^{-\lambda^2 kt}\cos(\lambda x)$$
$$\frac{\partial^2}{\partial^2 x}(e^{-\lambda^2 kt}\sin(\lambda x)) = -\lambda^2 e^{-\lambda^2 kt}\sin(\lambda x)$$
$$\frac{\partial}{\partial t}(e^{-\lambda^2 kt}\cos(\lambda x)) = -k\lambda^2 e^{-\lambda^2 kt}\cos(\lambda x)$$
$$\frac{\partial}{\partial t}(e^{-\lambda^2 kt}\sin(\lambda x)) = -k\lambda^2 e^{-\lambda^2 kt}\sin(\lambda x)$$

So we get the desired equility.