ut = 3uxx + 2, 0 < x < 4, t > 0,

u(0,t) = 0, u(4,t) = 0, t = 0

u(x,0) = 5sin2πx,0 < x < 4.

(a) Find the steady state solution uE(x)

(b) Find an expression for the solution.

(c) Verify, from the expression of the solution, that limt→∞ u(x, t) = uE (x)

for all x, 0 < x < 4.