Worksheet #17: Some simple PDE's

(1) Find a general solution to $tu_{xx} - 4u_x = 0$. [Hint: Try a substitution.]

(2) (a) Find a general solution to $u_{xt} + \dfrac{u_t}{x} = \dfrac{t}{x^2}$. [Hint: Try integrating with respect to t first.]

  (b) Check that your solution satisfies the original PDE.

  (b) Can you integrate with respect to x first?

  (c) If you want to solve an ODE in x first, try it. Do you get the same answer?