Sample exam question Mathematics for Business B 2021-2022

Topic 2 : Linear functions and linear programming

Question 2

A butcher sells two types of minced meat. One kg of the first type contains 300 g of pork and 700 g of beef while one kg of the second type contains 600 g of pork and 400 g of beef. Daily, the butcher processes at most 15 kg of pork and at most 14 kg of beef, but at least as much pork as beef.

   a) Show on a graph the amounts of minced meat for the first and second type that the butcher can produce on a daily basis.
   b) The butcher wishes to maximize his daily revenue from the sale of minced meat. A contour plot for the (linear) revenue function of the butcher (in euros) from the sale of minced meat is given below, consisting of two contour lines of respectively levels 120 and 240. Add these two contour lines to your graph from part a). Using these contour lines (and *without finding the revenue function equation*), determine the amounts of minced meat of the two types that maximize the butcher's revenue. Give an estimate for this maximum revenue as well.