

Quiz 1

a) Consider the following four utility functions:

$$U1(x_1, x_2) = x_1 + x_2$$

$$U2(x_1, x_2) = \sqrt{x_1} + \sqrt{x_2}$$

$$U3(x_1, x_2) = \min(x_1, x_2)$$

$$U4(x_1, x_2) = x_1 + x_2 + 2\sqrt{x_1 x_2}$$

Do any of them represent the same preferences? Do any represent perfect substitutes or complements? If you give a positive answer do not forget to tell us which ones.

b) Nancy prefers 2 pieces of cake over 2 cups of coffee, 2 cups of coffee over 1 piece of cake plus 1 cup of coffee, and 2 pieces of cake over 1 cup of coffee plus 1 piece of cake. Do her preferences satisfy the transitivity axiom? What about convexity?

c) Let $U(x_1, x_2) = x_1 x_2^2$. Find the MRS and show that it decreases along the indifference curves.