Consider the following utility functions:

1. Explain what the relationship between a utility function and preference is.
2. What types of preferences, , andrepresent, respectively?
3. For each of the utility functions,,and, show whether it has the same preferences as.
4. Suppose and represent the preferences for consumer E and consumer F, respectively. Determine whether each commodity and is an economic good, an economic bad or an economic neutral for E and F.
5. Do and represent the same preference? Explain.
6. For each of and, check whether they represent monotonic preferences? Explain in detail by marginal utilities.