

A brief note on utility functions:...

For our class, if I ask you to verify that two utility functions represent the same preferences, then I am looking for you to verify that our utility functions have the same MRS expressions. I will not be looking to trick you with these problems.

However, for those of you who are interested...

There are exceptions to this rule. Consider:

$$u(x, y) = x + y$$

$$\tilde{u}(x, y) = -(x + y)$$

$$\hat{u}(x, y) = (x + y)^3$$

You should be able to verify that:

$$MRS = \tilde{MRS} = \hat{MRS} = \frac{1}{1}$$

However, if  $A = \{2, 4\}$

$B = \{4, 8\}$

$$u(2, 4) = 2 + 4 = 6$$

$$\tilde{u}(2, 4) = -6$$

$$\hat{u} = 6^3$$

$$u(4, 8) = 12$$

$$\tilde{u}(4, 8) = -12$$

$$\hat{u} = 12^3$$

B is preferred to A.

A is preferred to B.

B is pref. to A.

What happened?

$\tilde{u}$  and  $\hat{u}$  are transformations of  $u$ . Our MRS

rule only applies to certain transformations. Specifically, the transforming function must be increasing.

$\tilde{u} = u * (-1)$  and  $(-1)$  is a "decreasing" transformation.