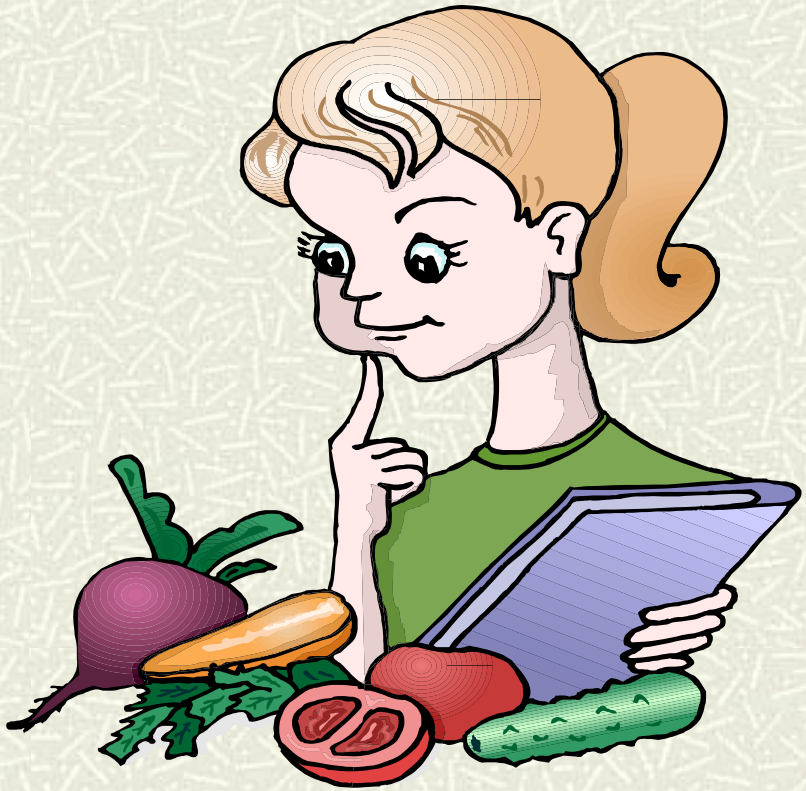
Preferences



Preference Relation

- The consumer strictly prefers bundle X to bundle Y:

$$(x_1, x_2) \succ (y_1, y_2)$$

- The consumer is indifferent between X and Y:

$$(x_1, x_2) \sim (y_1, y_2)$$

Weak Preference

- If

$$(x_1, x_2) \succ (y_1, y_2)$$

or

$$(x_1, x_2) \sim (y_1, y_2)$$

- Then: $(x_1, x_2) \succeq (y_1, y_2)$

How are the relations related?

Q: What do these two relations imply?

$$(x_1, x_2) \succeq (y_1, y_2)$$

$$(y_1, y_2) \succeq (x_1, x_2)$$

How are the relations related?

A: The consumer is indifferent between X and Y:

$$(x_1, x_2) \sim (y_1, y_2)$$

Assumption I: Complete Preferences

For any two bundles X and Y:

- X preferred to Y:

$$(x_1, x_2) \succeq (y_1, y_2)$$

- Y preferred to X:

$$(y_1, y_2) \succeq (x_1, x_2)$$

- Indifference:

$$(x_1, x_2) \sim (y_1, y_2)$$

Assumption II: Reflexive

Any bundle X is at least as good as itself:

$$(x_1, x_2) \succeq (x_1, x_2)$$

Assumption III: Transitive

- If:

$$(x_1, x_2) \succeq (y_1, y_2)$$

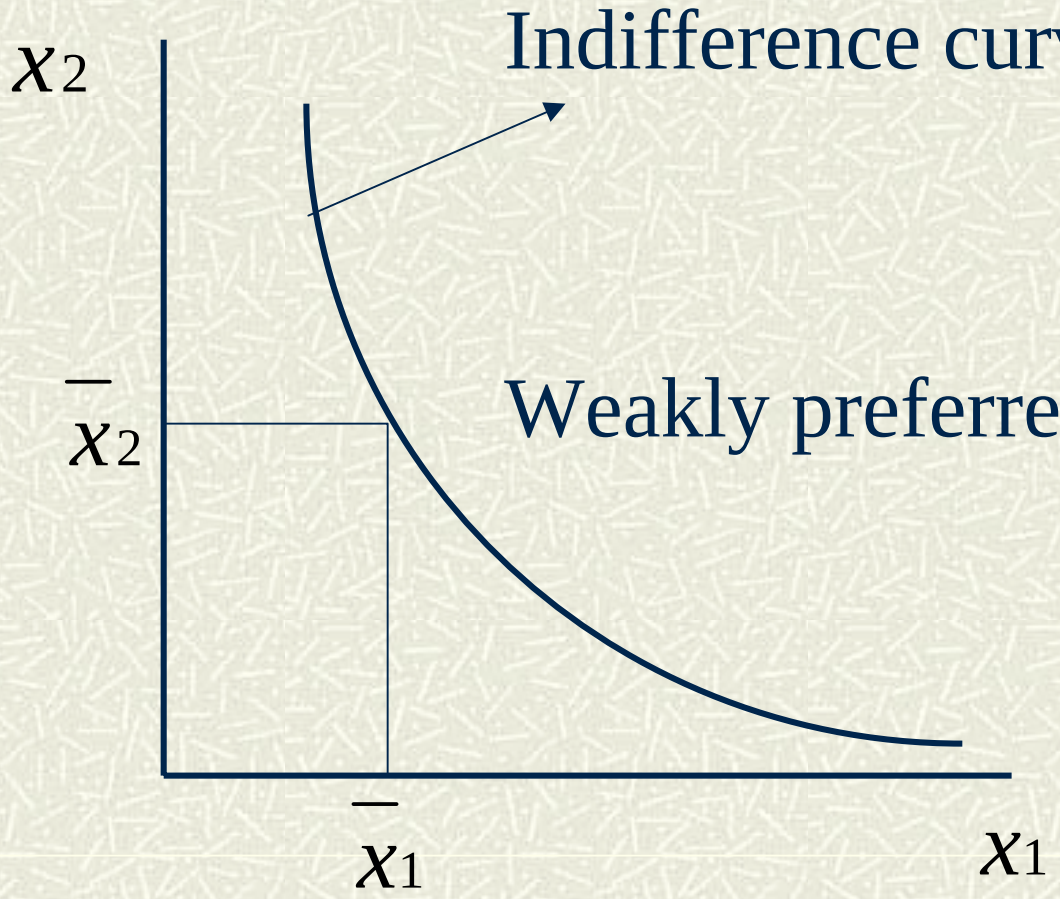
- And:

$$(y_1, y_2) \succeq (z_1, z_2)$$

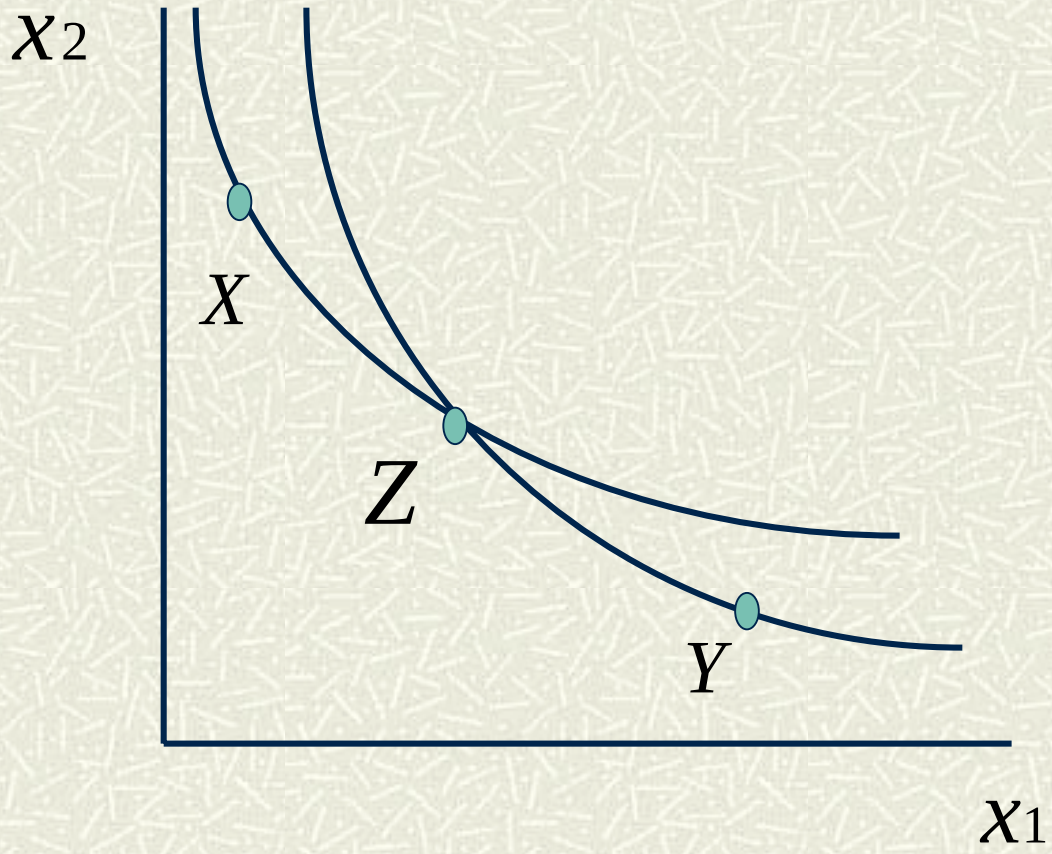
- Then:

$$(x_1, x_2) \succeq (z_1, z_2)$$

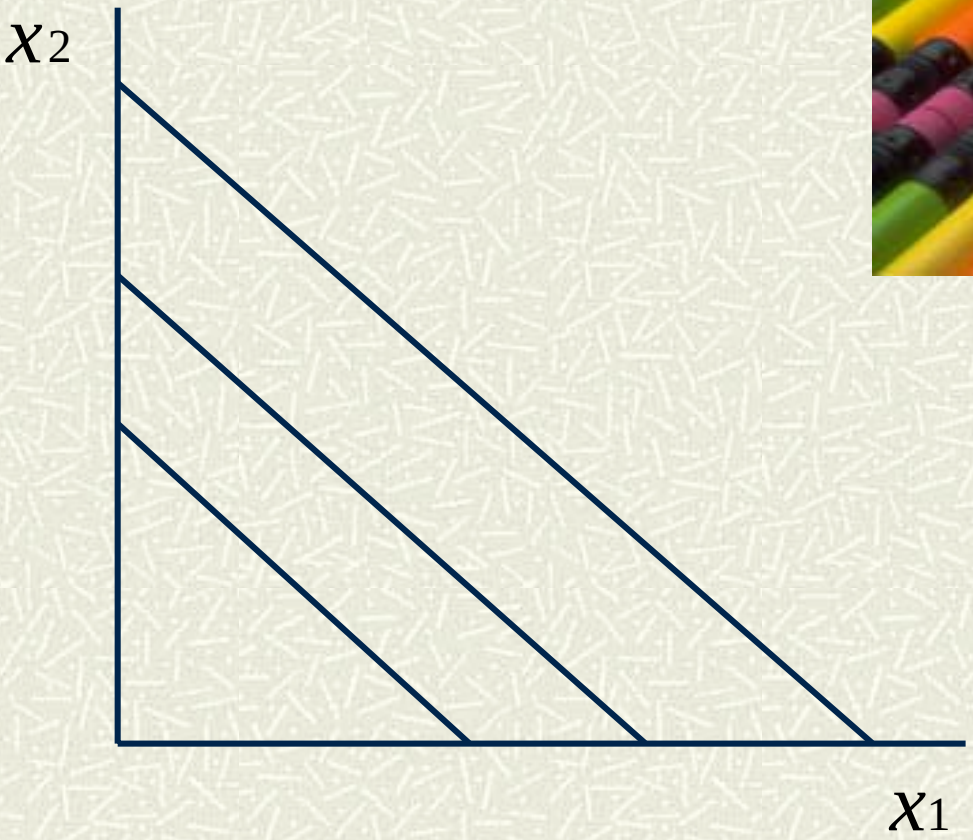
Indifference curves



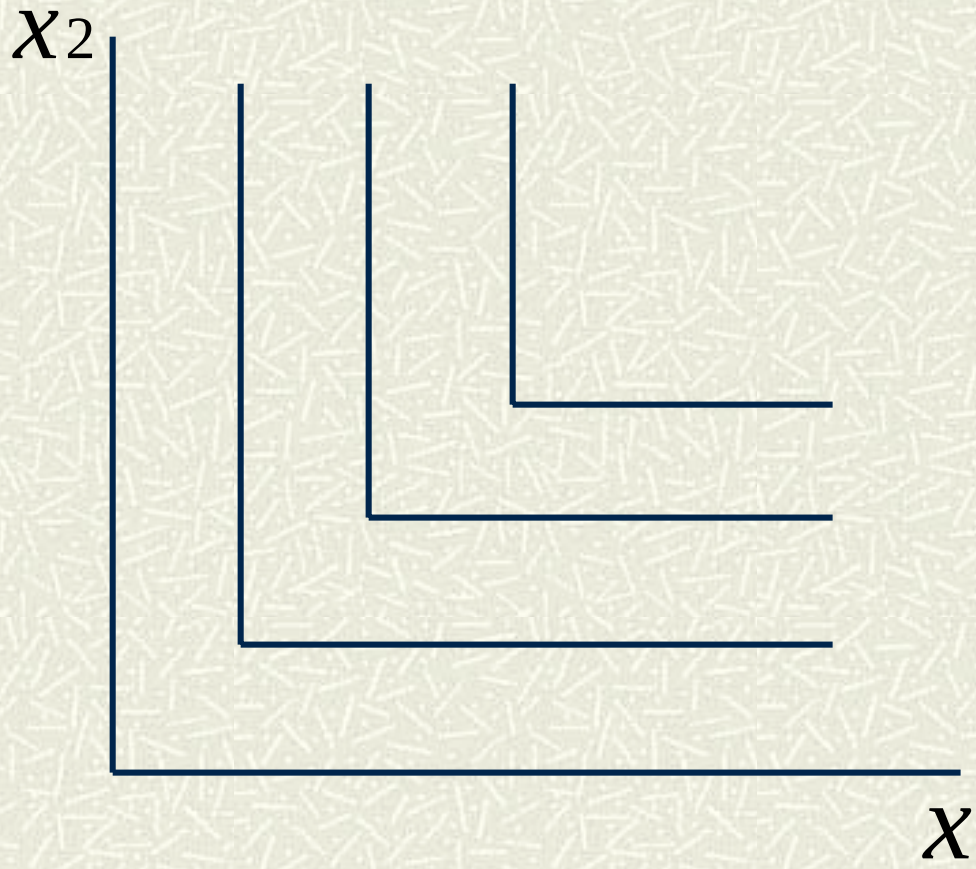
Q: Can indifference curves cross?



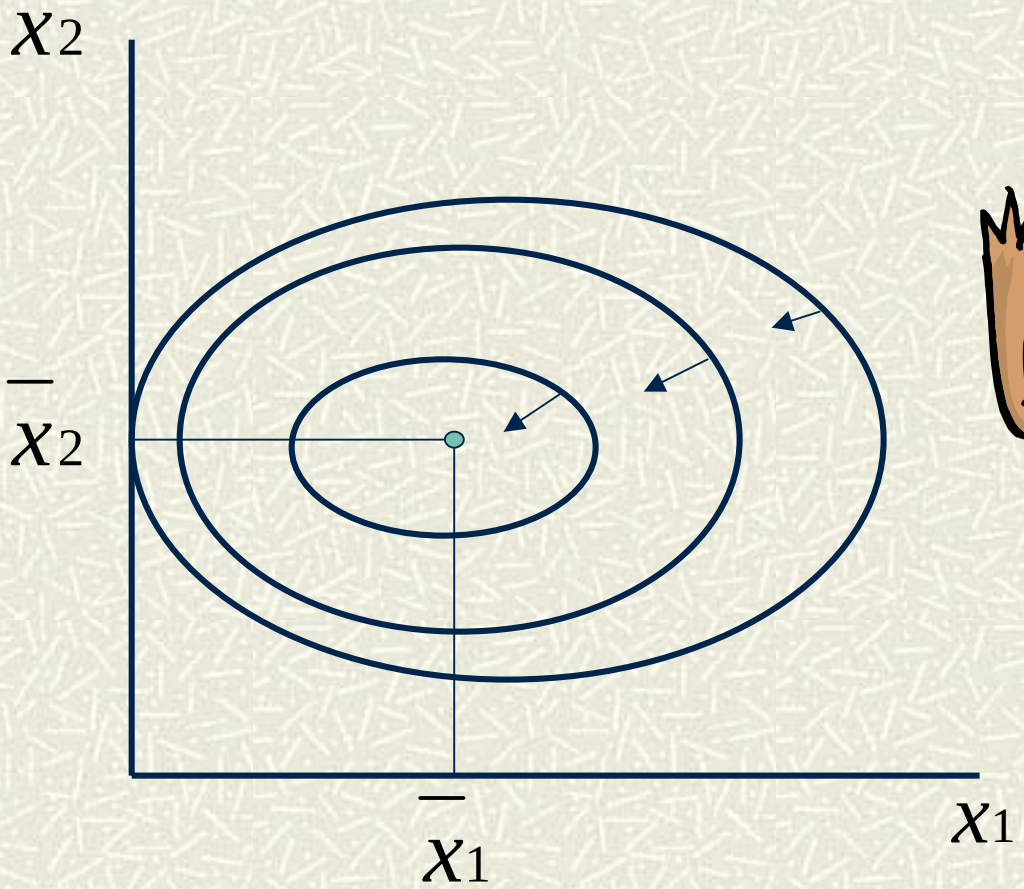
Perfect substitutes



Perfect complements



Satiation



Well-behaved preferences

- Let's impose some extra assumptions to rule out less interesting situations
- Well-behaved preferences satisfy two properties:

1. Monotonicity
2. Convexity

Monotonicity

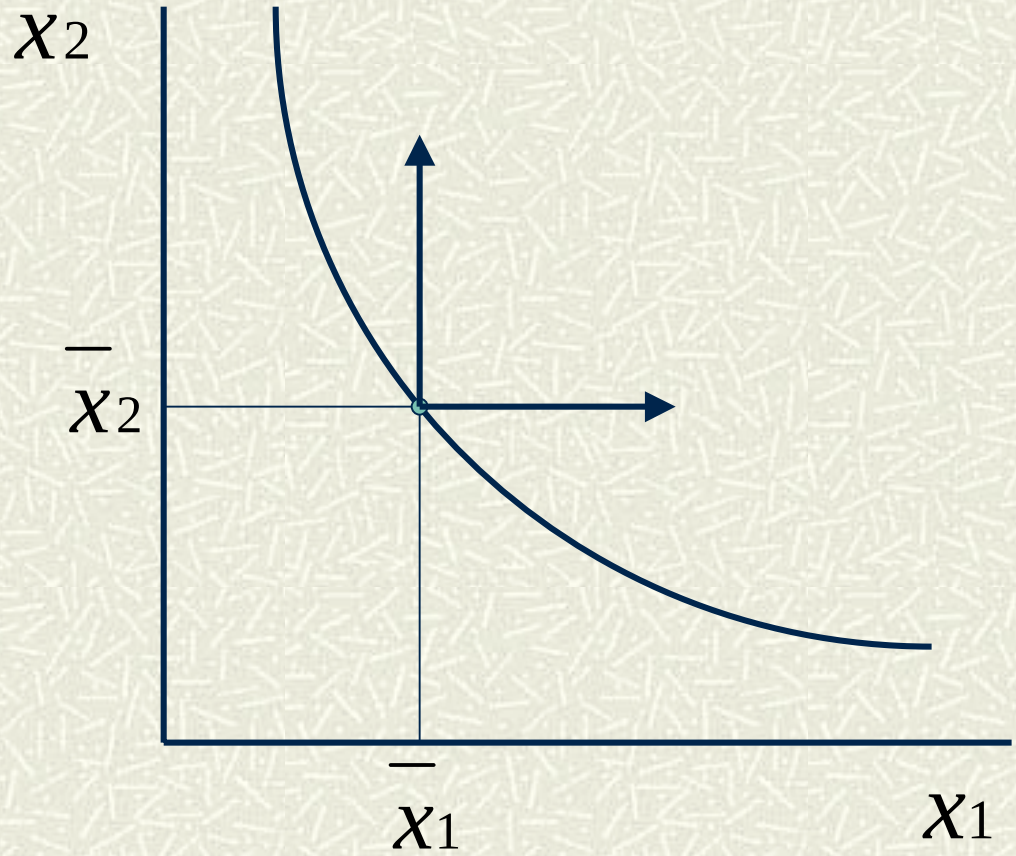
- Consider two bundles: $(x_1, x_2), (y_1, y_2)$

  where Y has at least as much of both goods and more of one.

- Then: $(y_1, y_2) \succ (x_1, x_2)$

- Monotonicity implies that indifference curves have negative slopes

Indifference curves have negative slopes



Convexity

- Consider two bundles:

$$(x_1, x_2) \sim (y_1, y_2)$$

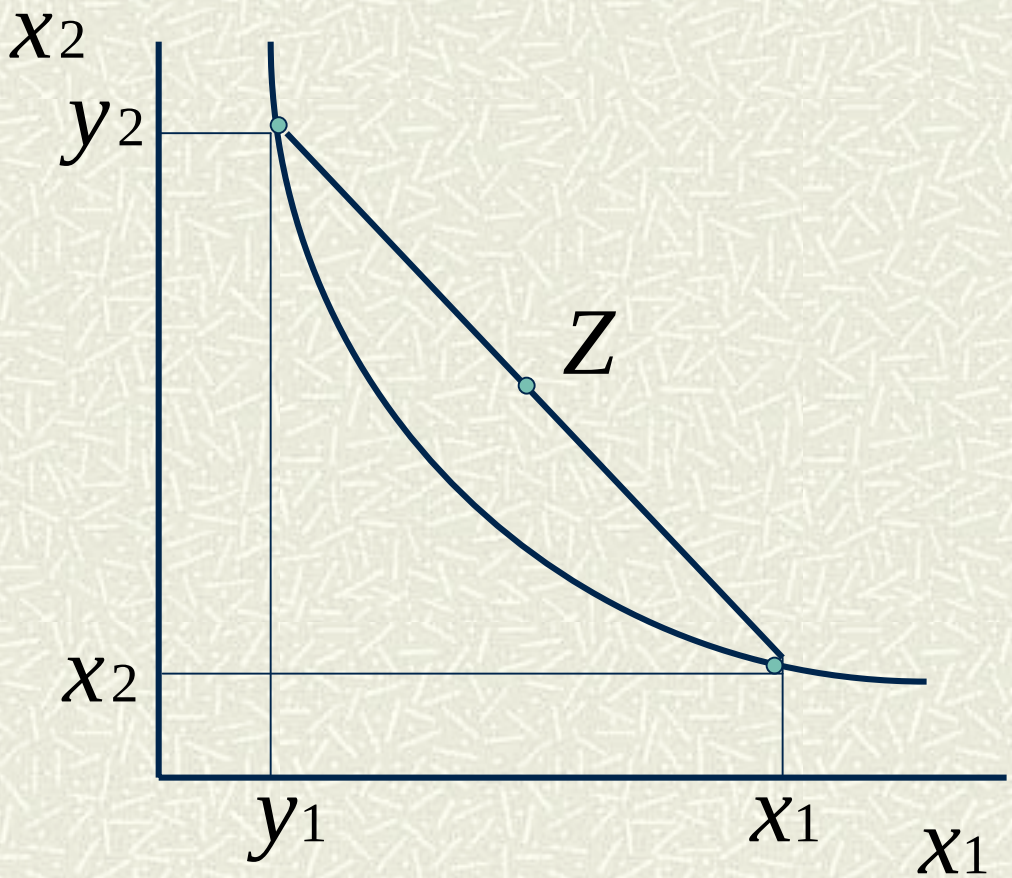
- Convexity implies that, for $0 \leq t \leq 1$

$$(tx_1 + (1-t)y_1, tx_2 + (1-t)y_2)$$

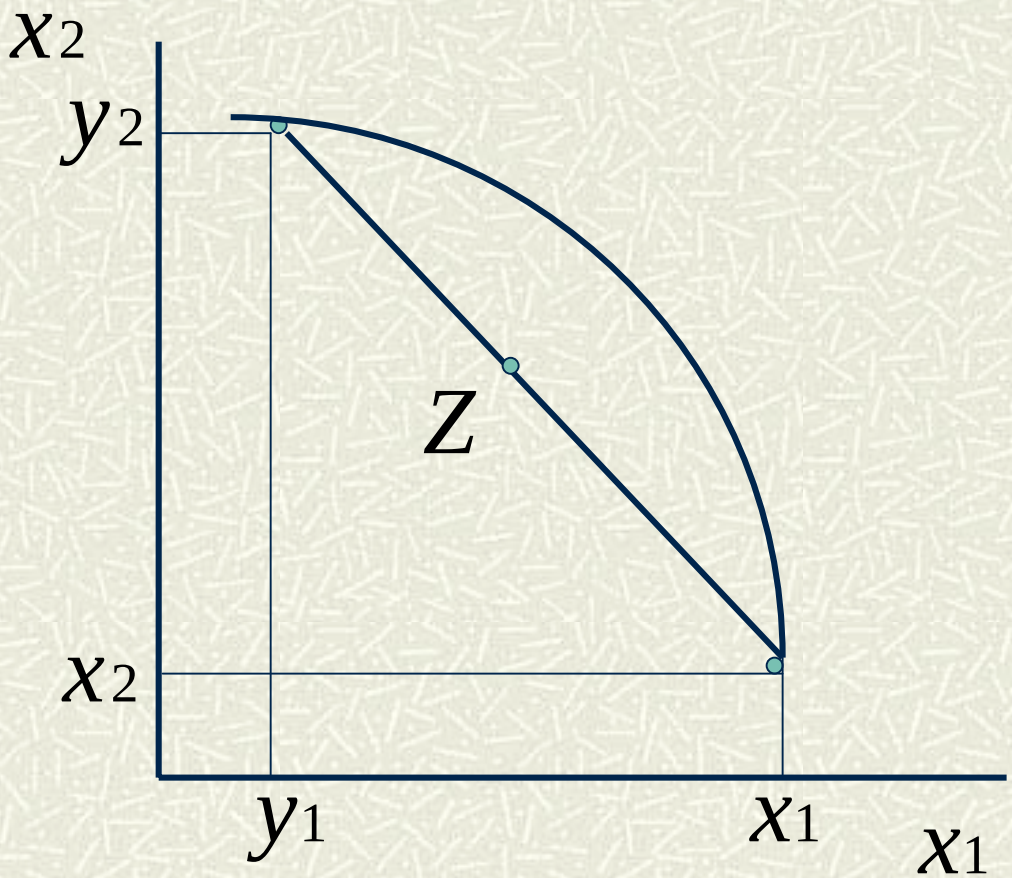
$$\succeq$$

$$(x_1, x_2)$$

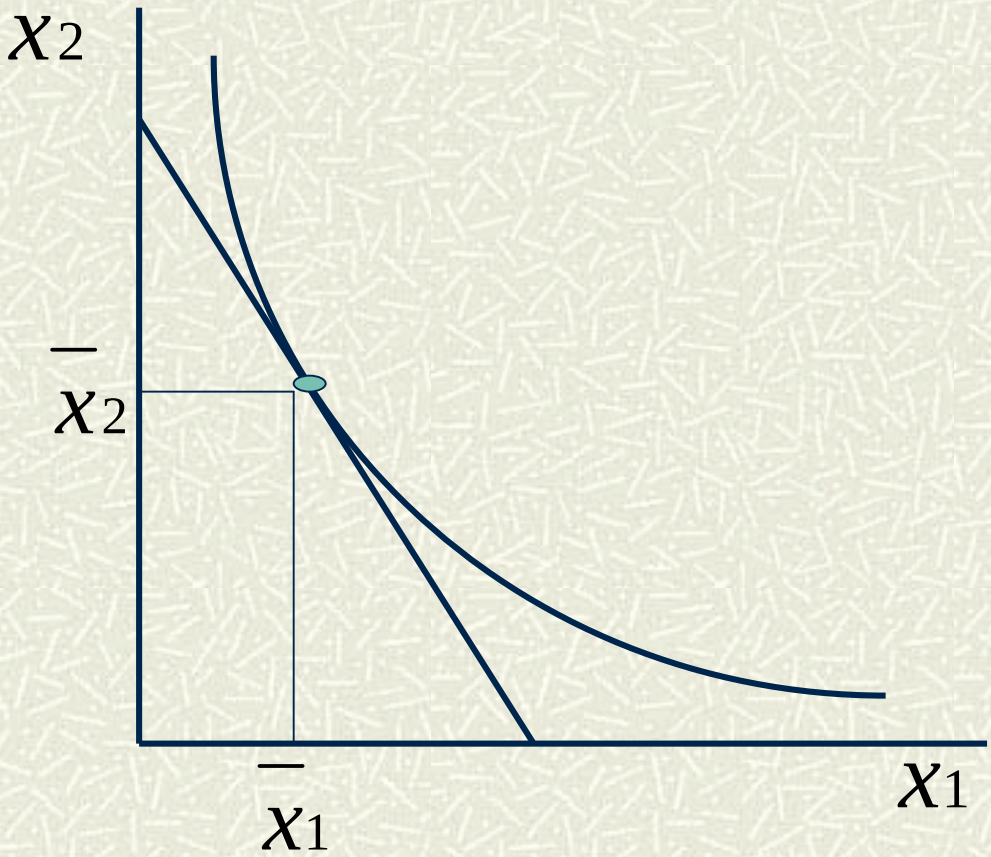
Convex preferences



Non-convex preferences



Marginal rate of substitution



- The MRS is the slope of the indifference curve at a point $(\bar{x}_1, \bar{x}_2)$
- MRS=derivative of indifference curve

Interpretation of MRS

- The MRS measures the rate at which the consumer is willing to substitute one good for the other.
- If good 2 is measured in dollars, the MRS measures the consumer's willingness to pay for an extra unit of good 1.