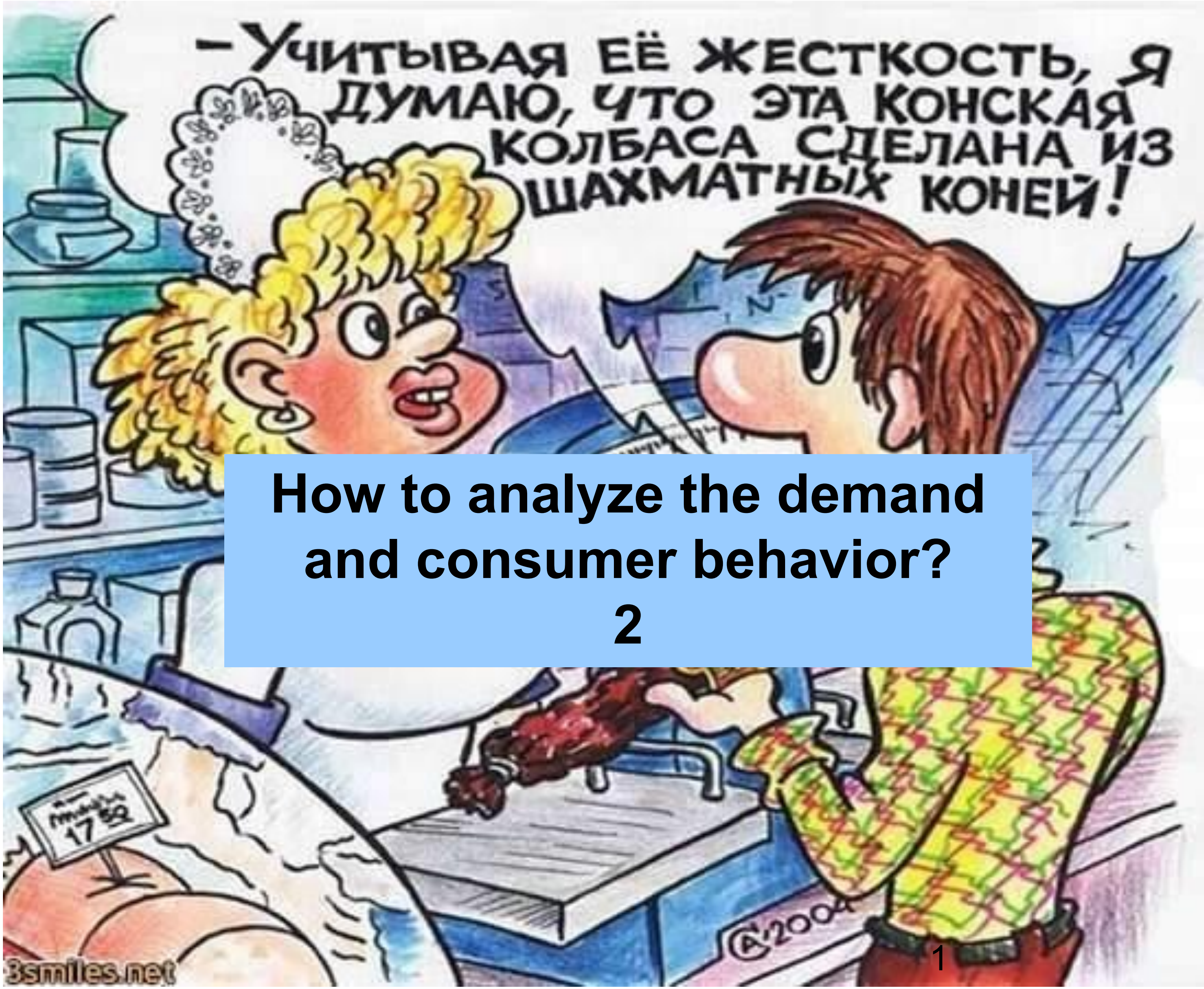


How to analyze the demand and consumer behavior? 2

…it is difficult to link the subjective preferences of consumers to changes in prices, income and other market variables that are objective…

The ordinal approach to the consumer balance

The combinations of goods should be arranged in the order of preference

assumption: consumers can define packages of goods and services in the order of preferences

$$TU = f(X_{1,} X_{2,} ...., X_n)$$

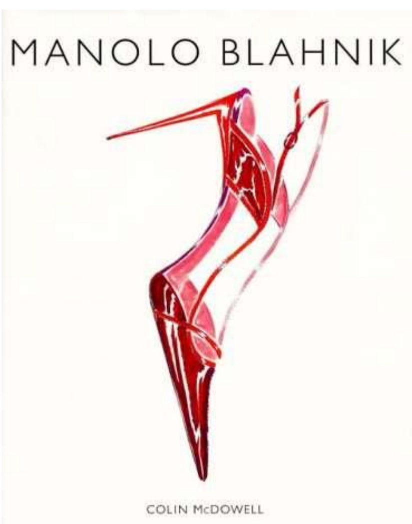
Function of total utility

The quantity of goods consumed in the accounting period

$$TU = f(X, Y)$$

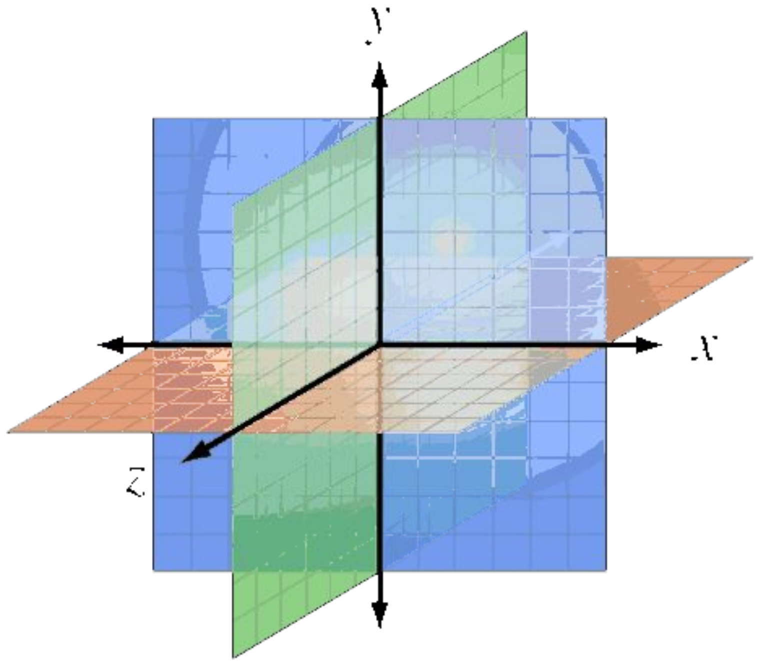
Function of total utility

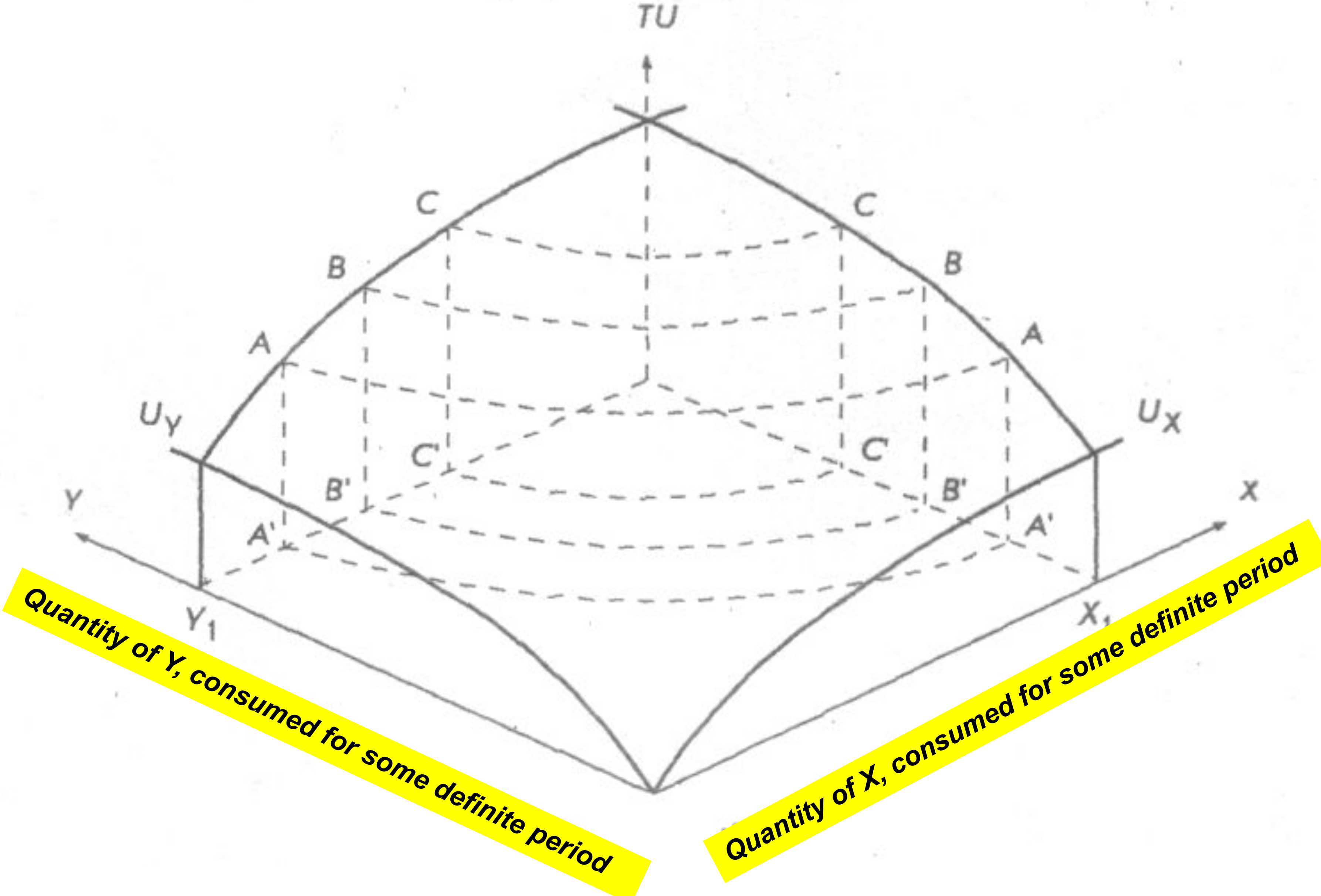
The quantity of goods (or packages of goods) consumed in the accounting period



$$\mathrm{TU} = f(X, \mathrm{Y})$$

This equation describes some surface in three-dimensional space



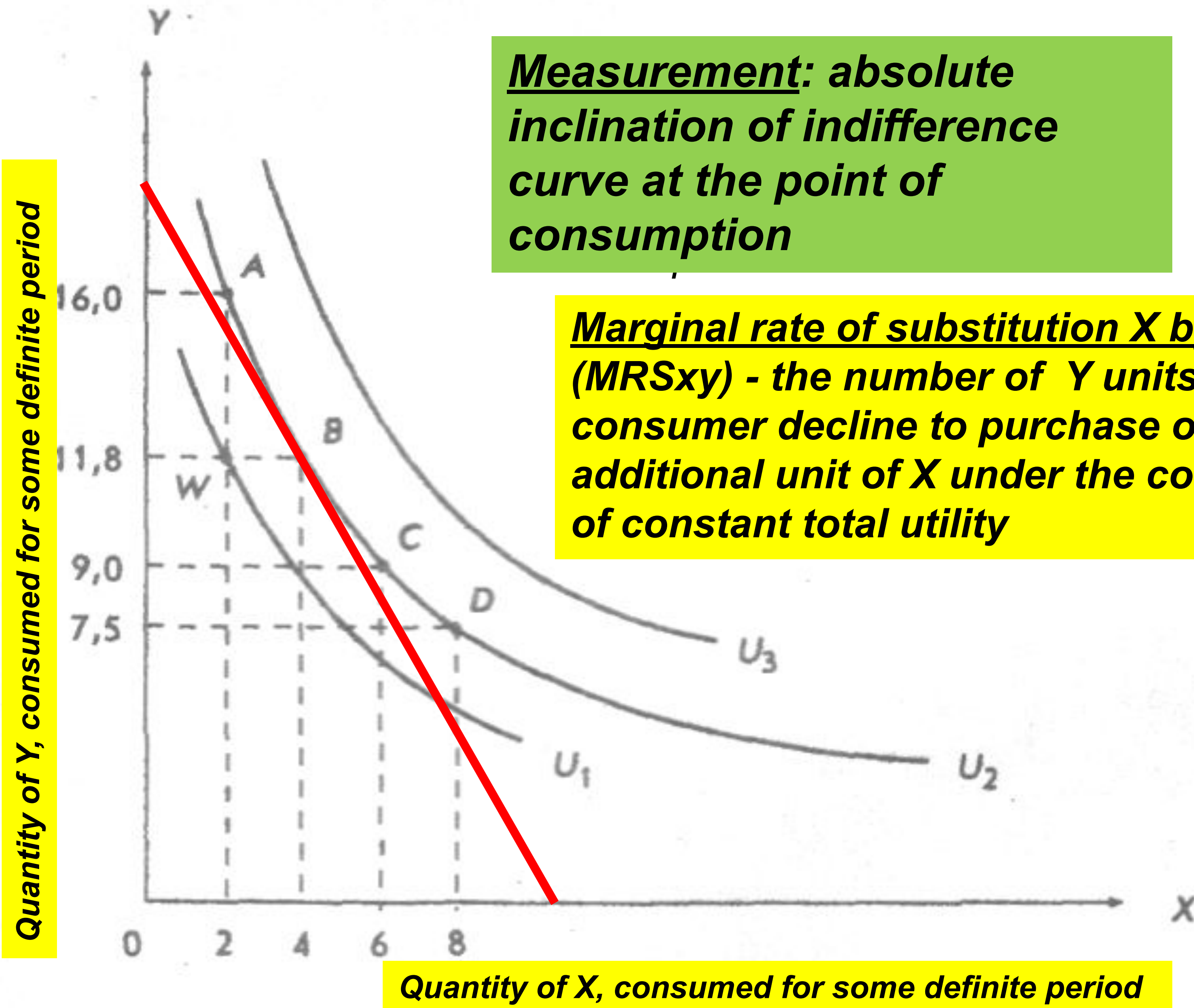

TU
C
C
B
B
A
A
U_Y
U_X
C'
C'
B'
B'
A'
A'
Y
X
Y_1
X_1
Quantity of Y, consumed for some definite period
Quantity of X, consumed for some definite period

<u>Indifference curve</u> is the sum of all combinations of goods X and Y, which provide the same level of total utility or satisfaction

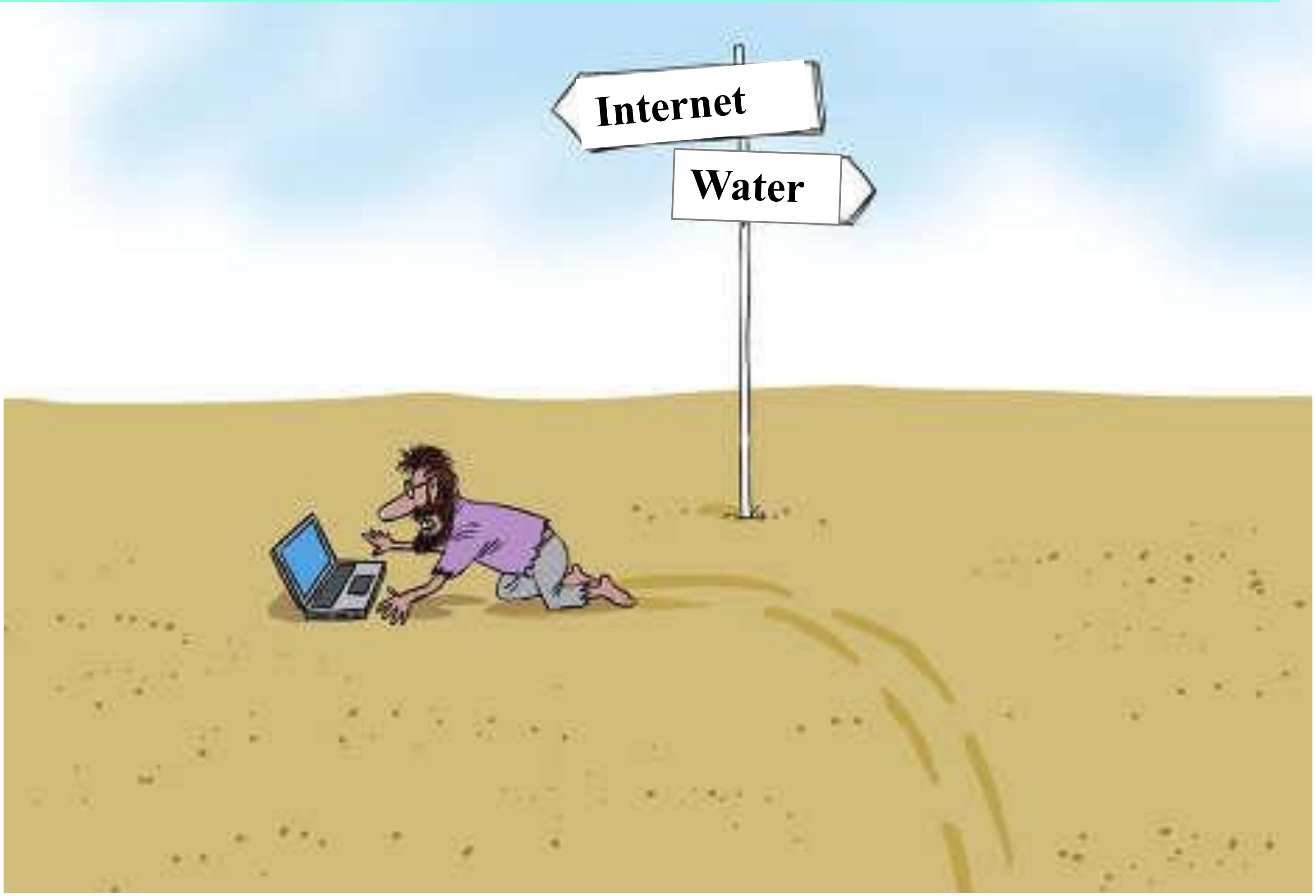
<u>Indifference map</u> is a chart that reflects indifference curves

<u>Measurement</u>: absolute inclination of indifference curve at the point of consumption

***<u>Marginal rate of substitution X by Y</u>* (MRSxy) - the number of Y units consumer decline to purchase one additional unit of X under the condition of constant total utility**

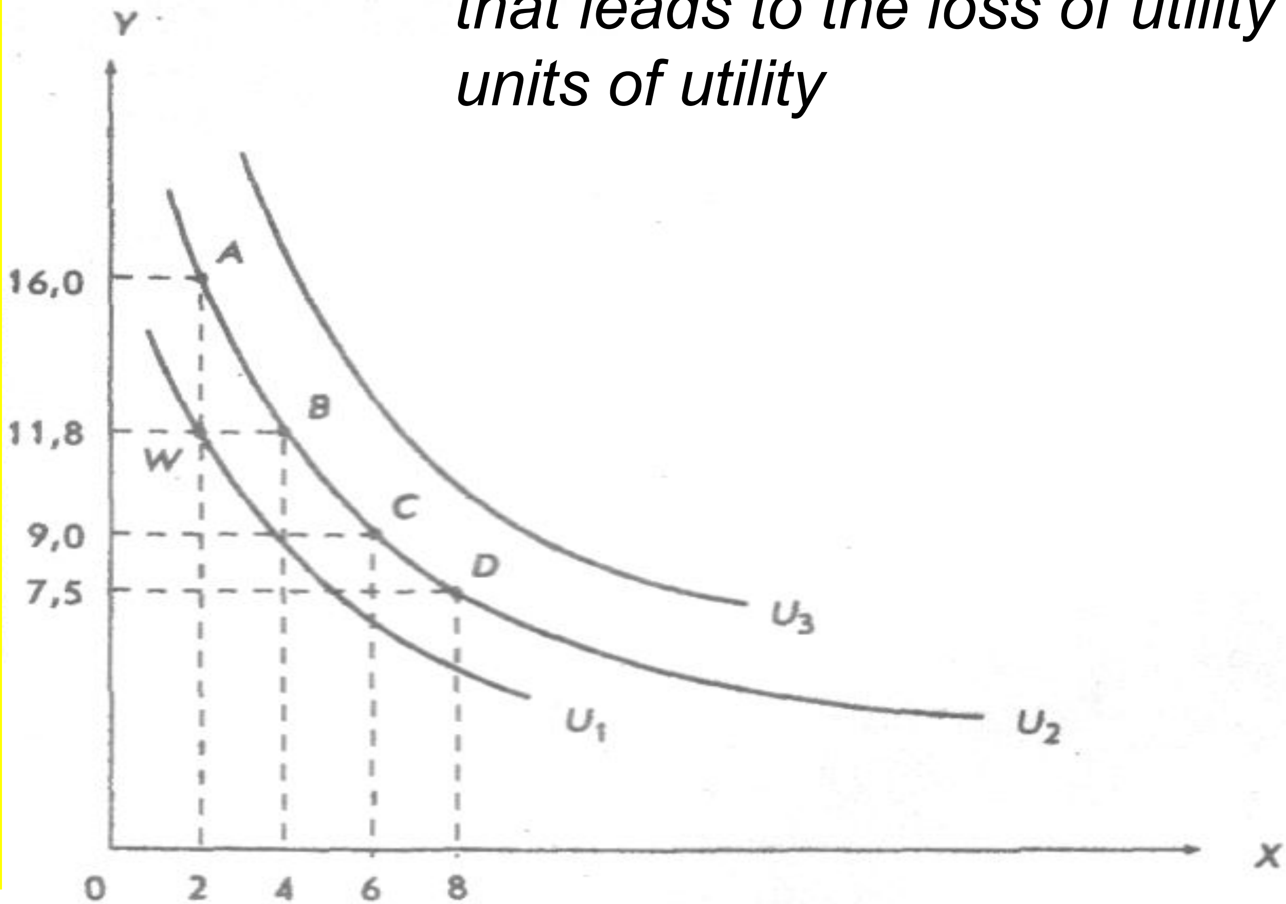


Is there a correlation between the marginal utility and marginal rates of substitution?



] consumption of Y is reduced by ΔY

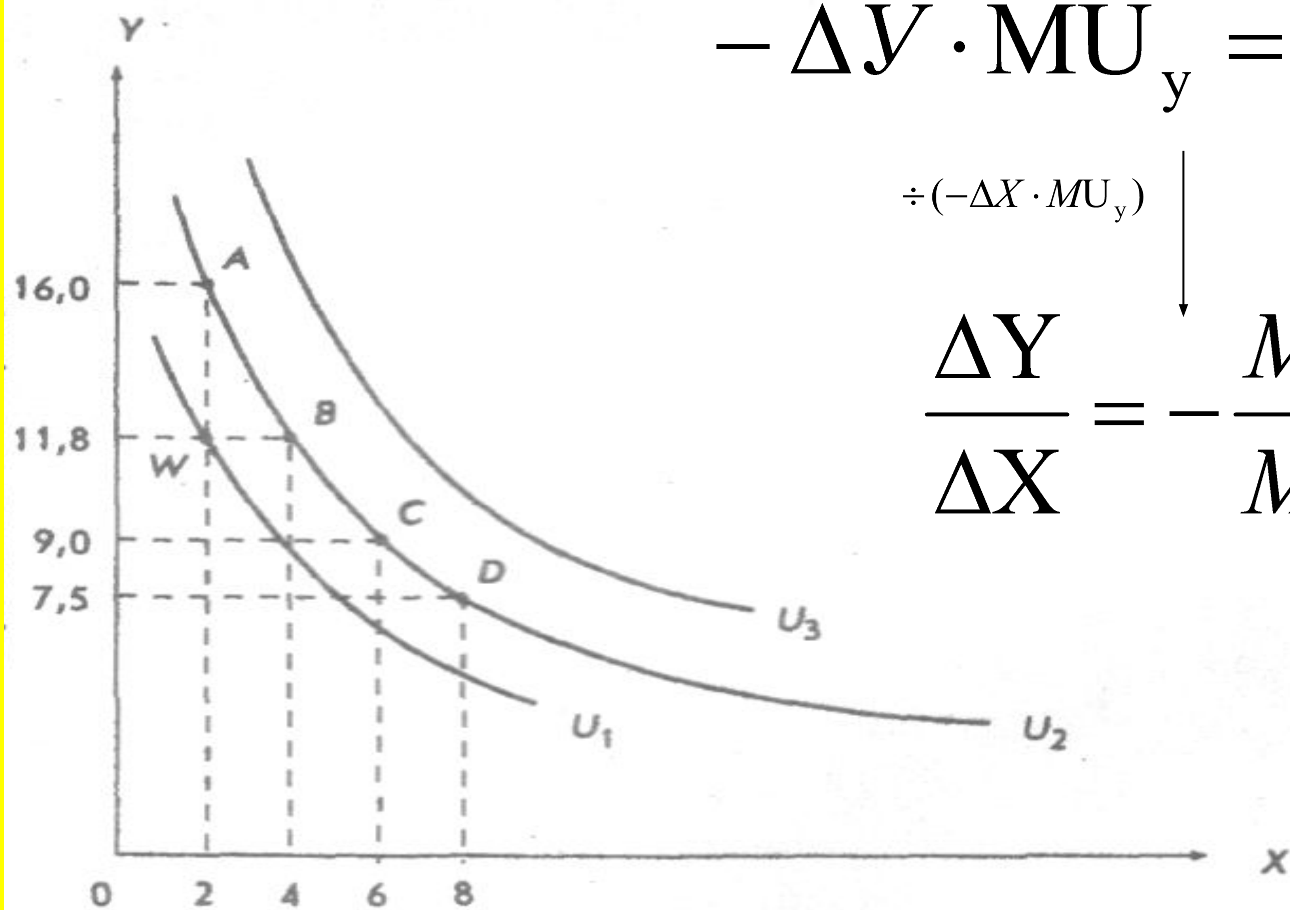
that leads to the loss of utility - ΔY MUy units of utility



Quantity of Y, consumed for some definite period

Quantity of X, consumed for some definite period

But total utility remains unchanged, loss from -ΔY is offset by the increased consumption of X



Quantity of Y, consumed for some definite period

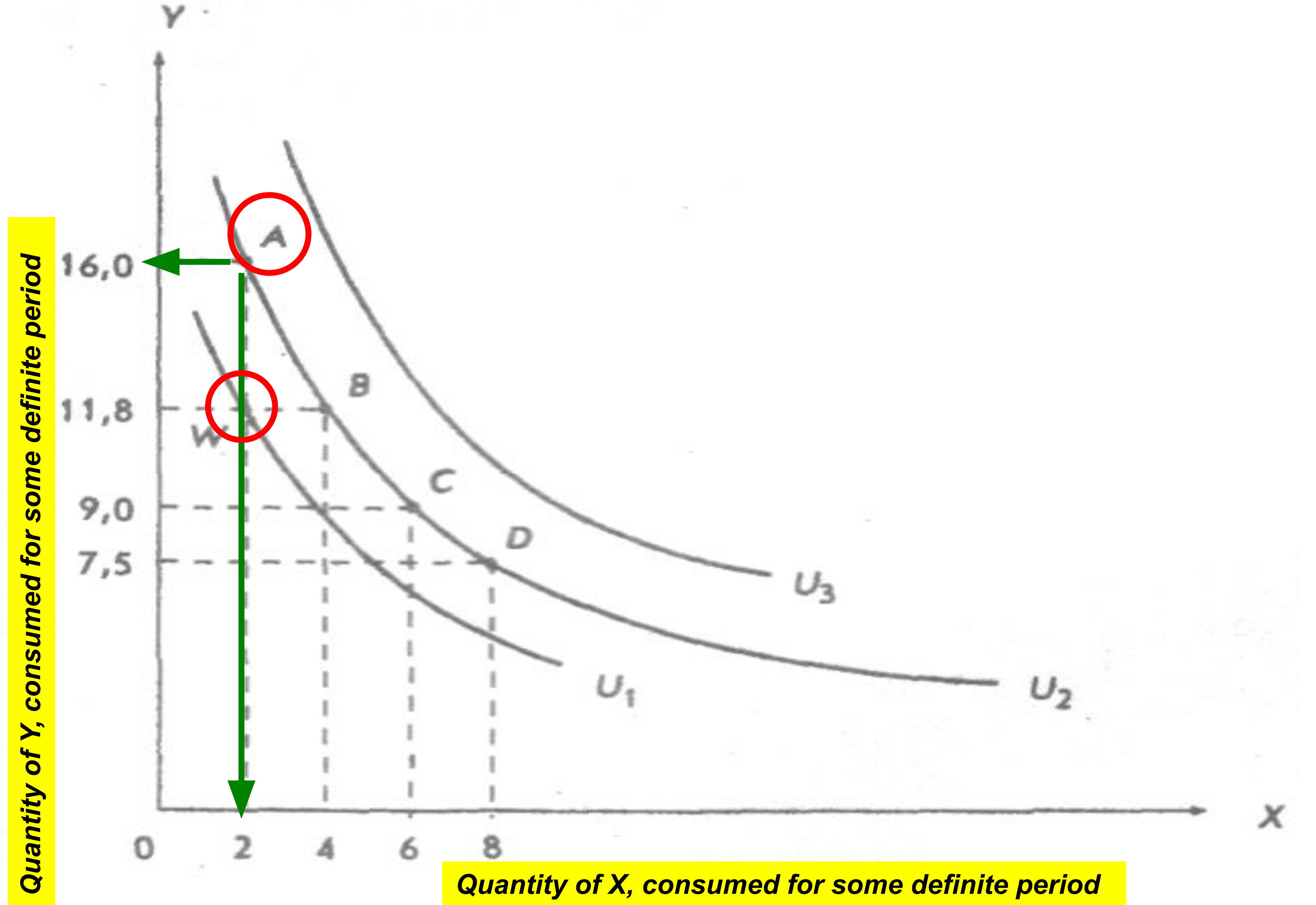
$$-\Delta Y \cdot \mathrm{MU}_{\mathrm{y}} = \Delta X \cdot MU_x$$

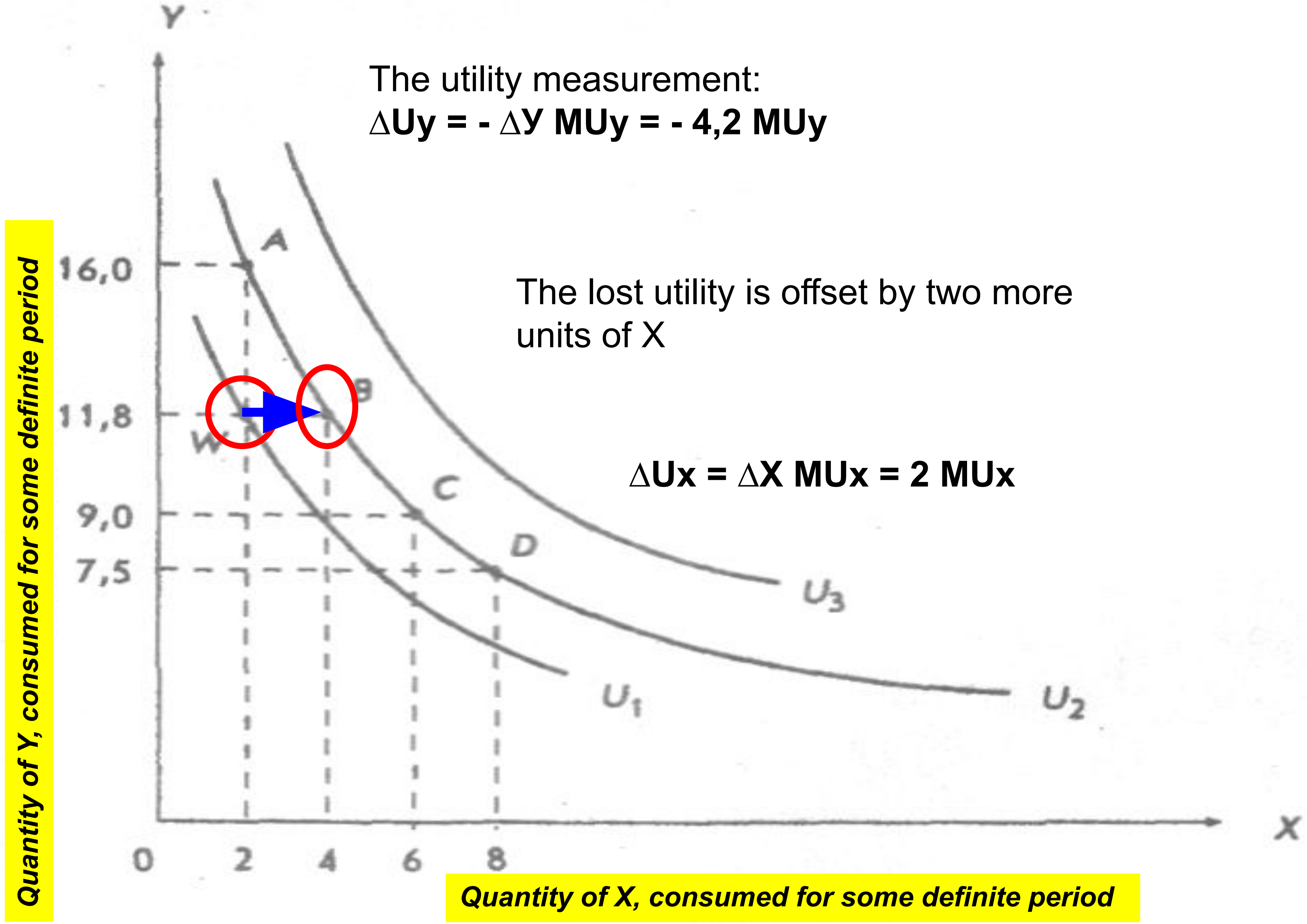
$$\div(-\Delta X \cdot M\mathrm{U}_{\mathrm{y}})$$

$$\frac{\Delta \mathrm{Y}}{\Delta \mathrm{X}} = -\frac{MU_x}{MU_y}$$

The inclination of the indifference curve

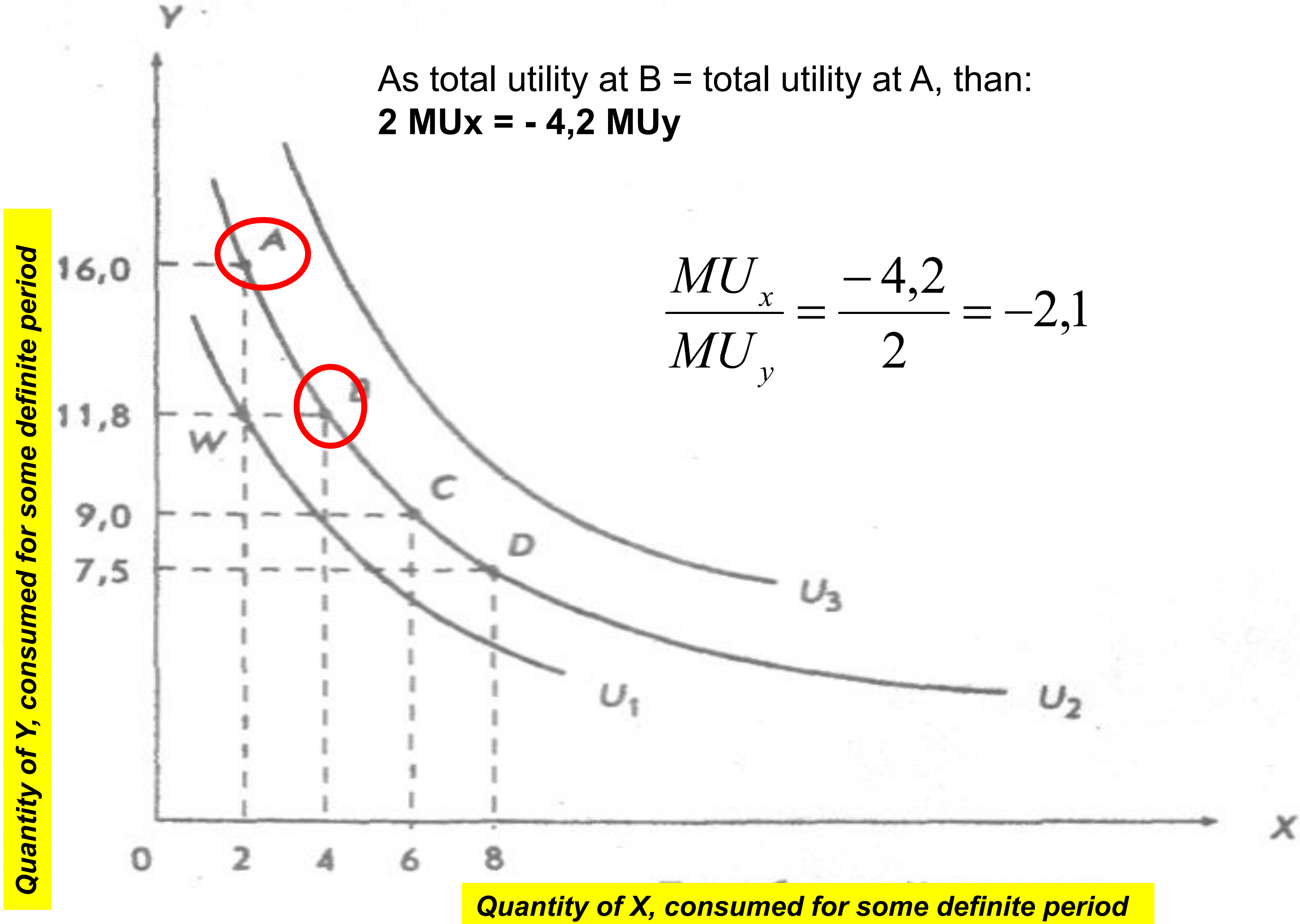
Quantity of X, consumed for some definite period


Y
16,0
11,8
9,0
7,5
A
B
C
D
W
U_1
U_2
U_3
0
2
4
6
8
X
Quantity of Y, consumed for some definite period
Quantity of X, consumed for some definite period


The utility measurement:
ΔUy = - ΔУ MUy = - 4,2 MUy
The lost utility is offset by two more units of X
ΔUx = ΔX MUx = 2 MUx
Y
X
16,0
11,8
9,0
7,5
0
2
4
6
8
A
B
C
D
W
U1
U2
U3
Quantity of Y, consumed for some definite period
Quantity of X, consumed for some definite period

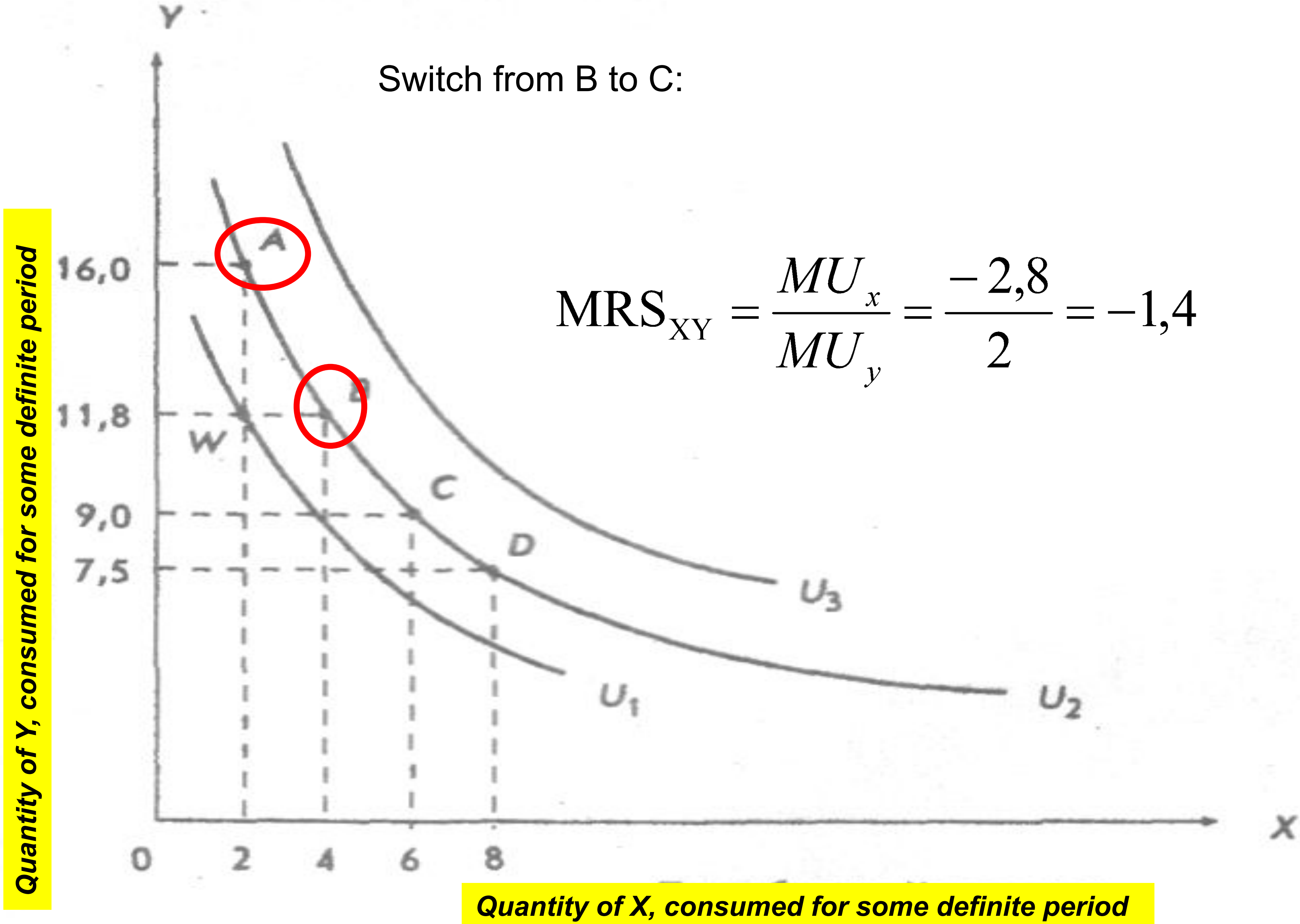
As total utility at B = total utility at A, than:
2 MUx = - 4,2 MUy

$$\frac{MU_x}{MU_y} = \frac{-4{,}2}{2} = -2{,}1$$



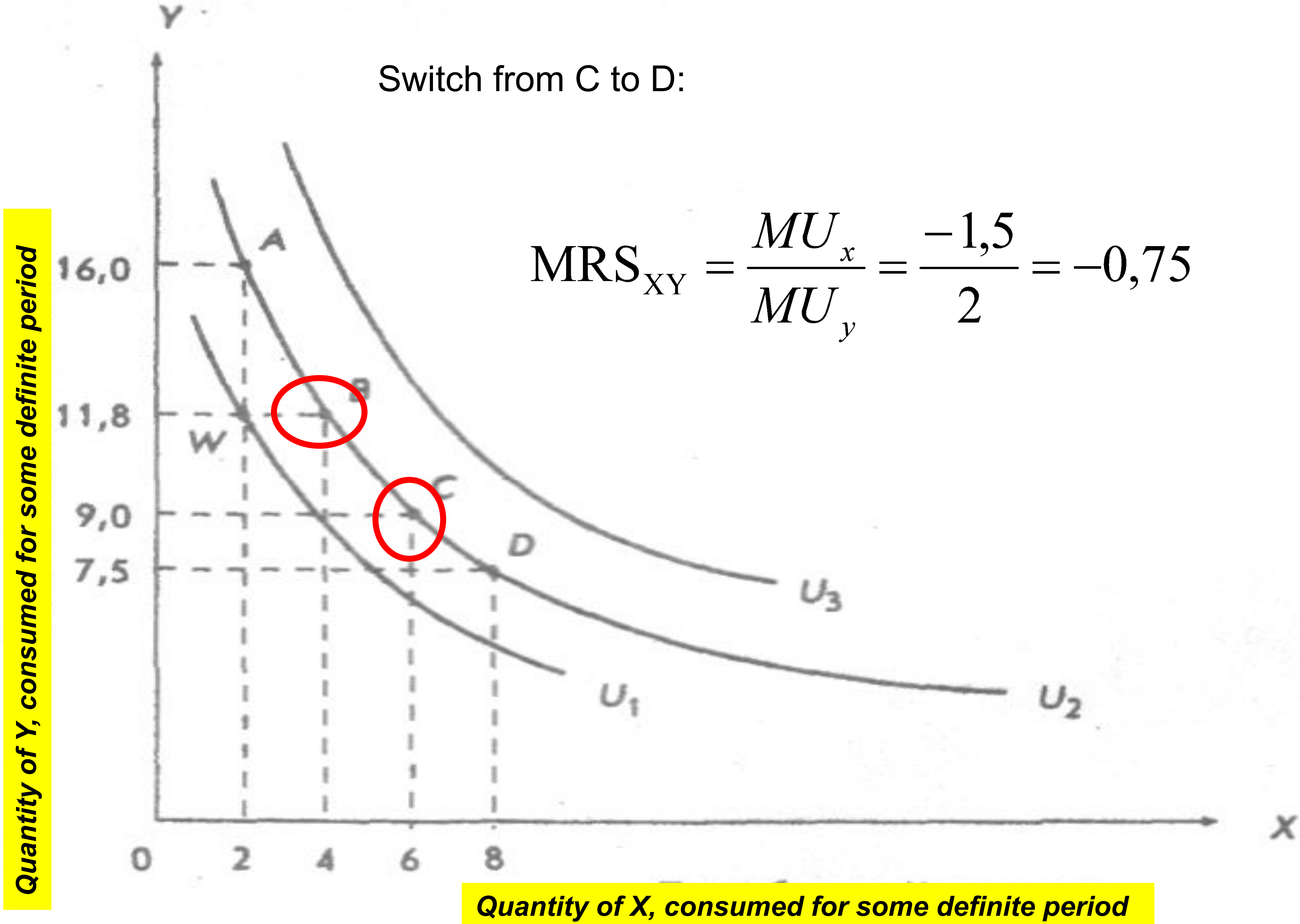
Switch from B to C:

$$MRS_{XY} = \frac{MU_x}{MU_y} = \frac{-2{,}8}{2} = -1{,}4$$

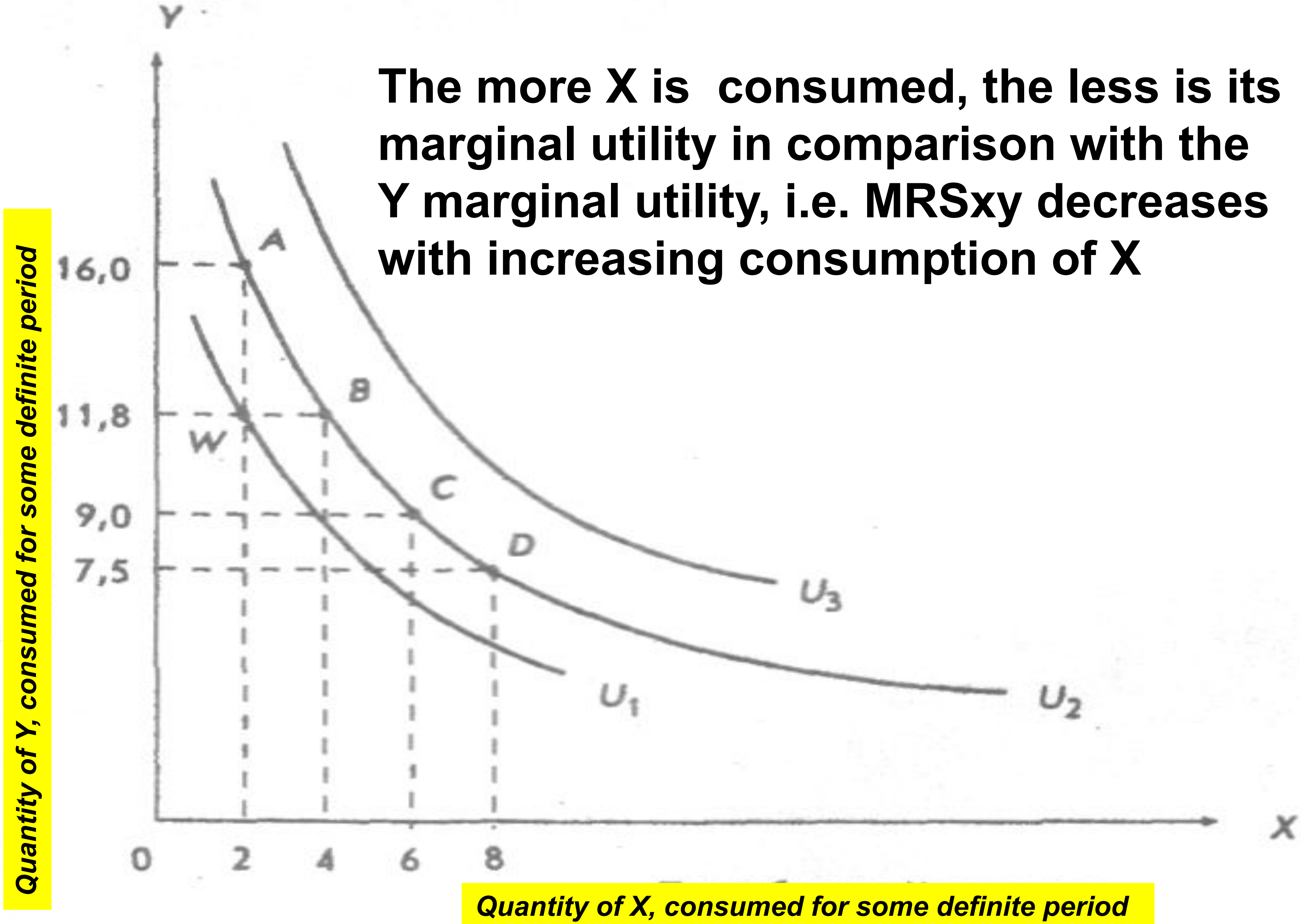


Switch from C to D:

$$MRS_{XY} = \frac{MU_x}{MU_y} = \frac{-1{,}5}{2} = -0{,}75$$



The more X is consumed, the less is its marginal utility in comparison with the Y marginal utility, i.e. MRSxy decreases with increasing consumption of X



Constantly decreasing MRS is a logical result of the assumption that the marginal utility of the product decreases as we acquire more of it

Ex: