

## Problem 1

Denisa plays two sports: badminton  $b$  and golf  $g$ .

Her utility function is  $u(b, g) = bg$ .

Her budget is  $m = 4000$  CZK per week.

Price per game:  $(p_b, p_g) = (500, 500)$  CZK.

She used to maximize her utility constrained by her budget.

Now she has a new job with only 12 hours time for sports.

One game of golf takes 3 hours and one game of badminton 2 hours.

Did the number of games change because of the time constraint?

If yes, by how many?

## Problem 2

Tereza drinks Czech beer  $b$  and french wine  $w$ .

Utility function:  $u(b, w) = b + 3w$

Price of beer is  $p_b = 30$  CZK.

Her income is  $m = 100,000$  CZK.

She buys a rare wine: The total expenditure on  $w$  glasses of wine is  $w^2$ .

How many glasses of wine does she buy?

## Problem 3

Tereza still buys Czech beer and french wine.

Her demand for wine is  $q = 0.001m - 0.1p_w$ , where  $p_w$  is price of wine.

Price of beer is  $p_b = 30$  CZK.

Her income is  $m = 100,000$  CZK.

Last year she bought wine from a different produces at  $p_w = 500$  CZK.

This year the price has increased to  $p_w = 600$  CZK

What is the substitution and income effect of this price change?

## Problem 4

Martin buys two unknown goods  $x$  and  $y$ .

His income was the same in 2015 and 2016.

Prices of  $x$  and  $y$  increased by 10%.

Martin bought more of good  $x$  and less of good  $y$

What can we say about goods  $x$  and  $y$ ?