Problem 1

A presidential candidate hires an advertising agency.
She pays CZK 100,000 for each percentage point of voters.
The agency uses billboards B to create votes: $V = 100B/(B+1)$
One billboard costs CZK 100,000.

What is the number of billboards a profit-maximizing agency uses?

Problem 2

Firm XYZ has a production function $f(x, y, z) = (x + y)^{\frac{1}{2}} z^{\frac{1}{2}}$.
The prices of inputs are $(w_x, w_y, w_z) = (100, 200, 300)$.

What is the percentage change in total costs if w_y doubles?

Problem 3

Firm ABCD uses four inputs with prices $(w_a, w_b, w_c, w_d) = (5, 1, 2, 3)$

a) What is the minimal cost of producing one unit of output if the firm's production function is $f(a, b, c, d) = \min\{a + b, c + d\}$?

b) What is the minimal cost of producing one unit of output if the firm's production function is $f(a, b, c, d) = \min\{a, b\} + \min\{c, d\}$?