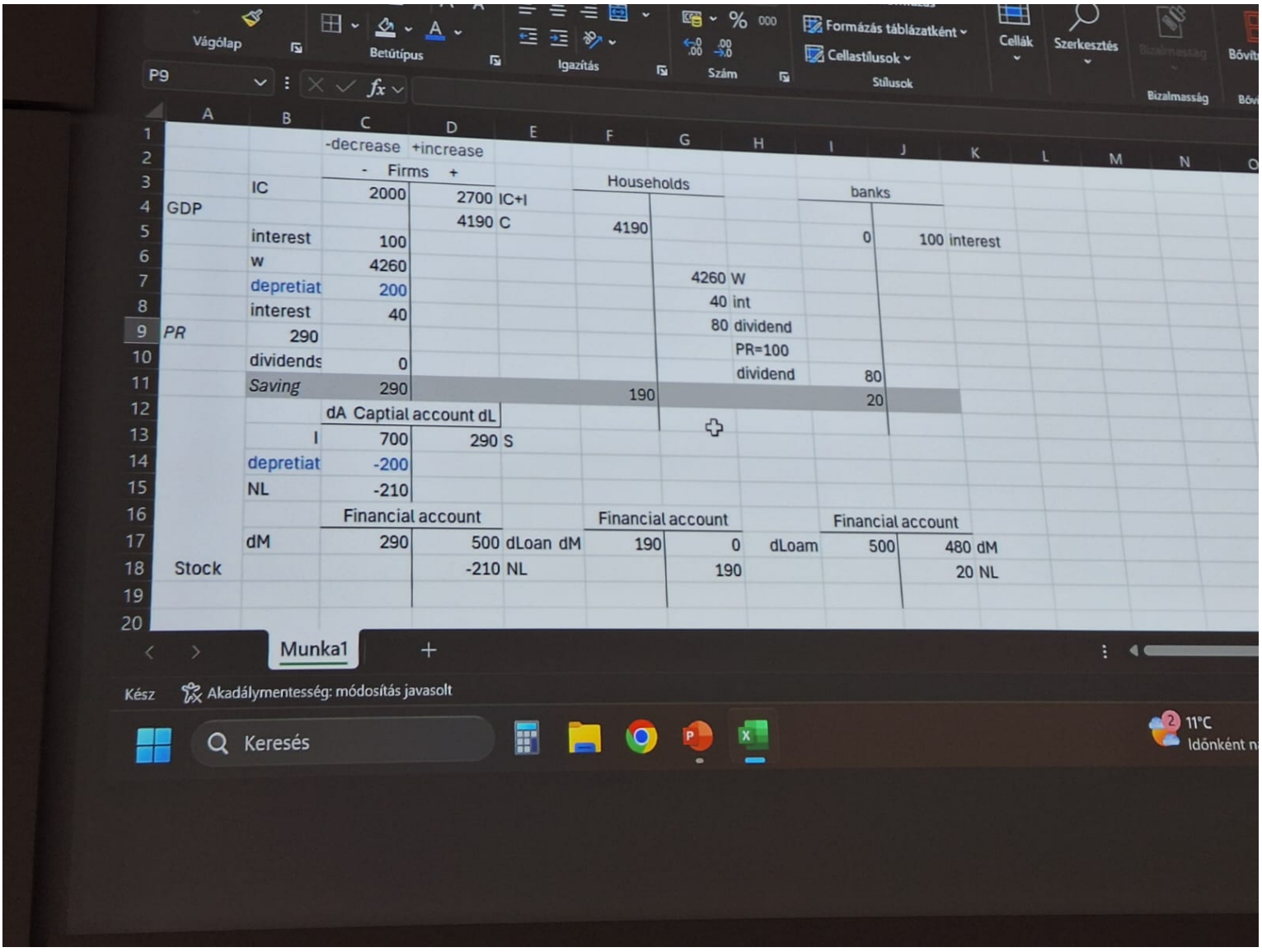
Example:

SAMPLE EXERCISES

National accounts

- Consider a closed economy of firms, households and banks. We have the following data on the economy in period t (in billion forints):
- Firms take out 10,000 loans from banks, which they spend with their existing money as follows: they spend 9,500 to repay the overdue loans, they pay 100 to the banks for interest; they buy 2,700 from other firms, of which 2,000 are immediately accounted as a cost. In total they pay out 4260 wages. We also know that the companies' cash reserves have increased by 290, they record 200 depreciation, they do not pay dividends.
- Banks distribute 80% of their profits as dividends each period, all other expenditure is excluded.
- Households always keep half of their total savings in cash and the other half always in corporate bonds. The interest rate on corporate bonds this year is 40.

Solution:



Example:

Question 2

Incorrect

Mark 0.00 out of 3.00

Consider a closed economy consisting of firms, households, and banks. The following data are known for period t: Total savings amount to 700 Ft, of which households hold 200 Ft. GDP is 4,700 Ft, contributed solely by firms, which are also the only entities with outstanding loans. No dividends are paid.

Firms' outstanding debt increases by 350 Ft, they pay 300 Ft in interest, and their money holdings increase by 100 Ft.
How much do firms pay in wages?

Answer: 4200 ✖

The correct answer is: 3950.00

Question 3

Incorrect

Mark 0.00 out of 3.00

How much do banks pay in wages?

Answer: 0 ✖

The correct answer is: 250.00

Of course! Let's break down these problems step-by-step using macroeconomic accounting principles. The user-provided hint has the right ideas but is a bit jumbled. We'll organize it into a clear, logical flow for each question.

The core principle here is that for any sector (firms, banks, households) and for the economy as a whole, the **Sources of Funds** must equal the **Uses of Funds**.

Given Information from the Problem:

- **Sectors:** Firms, Households, Banks (Closed Economy)
- **Total Savings (S_total):** 700
- **Household Savings (S_h):** 200 (The portion of total savings held by households)
- **GDP:** 4,700 (Contributed solely by firms)
- **Firms' Change in Debt (ΔL_f):** +350 (Increase in outstanding debt)
- **Firms' Interest Paid (Int_f):** 300
- **Firms' Change in Money Holdings (ΔM_f):** +100 (Increase in money holdings)
- **Dividends:** 0

Question 2: How much do firms pay in wages?

Correct Answer: 3950.00

Method: Analyzing the Firms' Sources and Uses of Funds

We can think of the firm's operations during period 't' as a flow of funds.

1. Identify the Firms' Sources of Funds (Money In):

- **Revenue from Sales:** The problem states GDP is contributed solely by firms, so their total revenue is the GDP.

    - Revenue = 4,700
- **New Borrowing:** Firms increased their debt, which is a source of new cash for them.
    - Increase in Debt (ΔL_f) = 350
- **Total Sources = 4,700 + 350 = 5,050**

2. Identify the Firms' Uses of Funds (Money Out):

- **Wages Paid (W_f):** This is the value we need to find.
- **Interest Paid (Int_f):** Given as 300.
- **Investment (I):** In a closed economy, **Total Savings = Total Investment**. Since S_total = 700, then Total Investment (I) = 700. In this simple model, firms are the only ones who perform capital investment.
    - Investment (I) = 700
- **Increase in Money Holdings (ΔM_f):** Firms increased their cash reserves. This is a use of funds.
    - Increase in Money (ΔM_f) = 100
- **Total Uses = W_f + 300 + 700 + 100**

3. Set Sources Equal to Uses and Solve for Wages (W_f):
Sources = Uses
5,050 = W_f + 300 + 700 + 100
5,050 = W_f + 1,100
W_f = 5,050 - 1,100
W_f = 3,950

This matches the correct answer.

Question 3: How much do banks pay in wages?

Correct Answer: 250.00

Method: Analyzing Sectoral Savings

To find the banks' wages, we first need to figure out the banks' profits (which are their savings). We can do this by breaking down the economy's total savings.

1. Find Firms' Savings (S_f):

- A firm's saving is its retained profit.
- Savings = Revenue - Expenses
- S_f = GDP - Wages Paid - Interest Paid
- S_f = 4,700 - 3,950 (from Q2) - 300
- **S_f = 450**

2. Use the Total Savings Identity to find Banks' Savings (S_b):

- Total Savings in the economy is the sum of savings from all sectors.
- S_total = Savings_Households (S_h) + Savings_Firms (S_f) + Savings_Banks (S_b)
- We are given S_total = 700 and S_h = 200. We just calculated S_f = 450.
- 700 = 200 + 450 + S_b
- 700 = 650 + S_b
- **S_b = 50**

3. Use the Bank's Profit/Savings Formula to find Bank Wages (W_b):

- A bank's profit (its savings) is its revenue minus its costs.
- **Bank Revenue:** The only source of revenue for the bank mentioned is the interest paid by firms.
    - Interest Received = 300

- **Bank Costs:** The only cost for the bank mentioned is wages.
    - Wages Paid = W_b (This is what we need to find)
- Now, set up the equation for bank savings:
- S_b = Interest Received - Wages Paid
- 50 = 300 - W_b
- W_b = 300 - 50
- **W_b = 250**

This matches the correct answer.