EXERCISE 4

Macroeconomic Magnitudes

October 18, 2018

1. Suppose an economy produces only three goods (A, B and C). We have data on quantities produced and the sales prices of these three goods for four consecutive years

Year	Good A		Good B		Good C	
	Price	Quantity	Price	Quantity	Price	Quantity
0	15	120	8	80	20	200
1	18	150	9	100	22	250
2	21	130	10	100	25	220
3	19	140	10	110	21	240

   (a) Calculate the nominal GDP for all years.

   (b) Taking year 0 as the base year, calculate real GDP for the four years.

   (c) Calculate the growth rates of nominal an real GDP between year 0 and year 1, year 1 and year 2, year 2 and year 3, and year 0 and year 3.

   (d) Interpret the results: How did the production of this economy changed over these four years?

2. Consider an economy with the national account data on the right.

   (a) Calculate GDP at market prices using the expenditure approach.

   (b) Calculate GDP at market prices using the income approach.

   (c) Calculate GNP_{mp}.

   (d) Calculate the disposable national income at market prices.

   (e) Calculate the national income.

Net investment	4 400
Subsidies	220
Exports	2 000
Depreciation of capital	500
Imports	3 800
Consumption	9 200
Net transfers with the rest of the world	−300
Indirect taxes	800
Factor payments from abroad	400
Factor payments to abroad	200
Employee compensation	6 000
Corporate profits	4 000
Rental & Proprietor income	1 720

3. Suppose an economy in which there are only four companies: Intel, PGS, IBM and Coca-Cola. In the past year, Intel has produced a million semiconductors that it sold to IBM for 200€ each to integrate them into their computers. PGS produces one million monitors also sold to IBM for 300€ each. IBM uses these components and produce a million computers that it sells at a price of 1 200€ each. Coca-Cola produces 200 million packs of 6 cans sold at 1.50€ per pack. Suppose that none of the companies has purchased any computer in the last year.

   (a) Calculate the GDP of this economy in the last year.
   (b) Calculate the added value of this economy for the last year as the sum of value added in each of the four companies. Verify that its value matches the GDP.

4. Suppose an economy that produces only two goods: computers and cars.

	Computers sold	Price of computers	Cars sold	Price of cars
Year 1	200 000	10 000	1 000 000	6 000
Year 2	1 500 000	2 000	1 500 000	10 000

   (a) Assuming both computers and cars are final products, calculate the nominal GDP.
   (b) Calculate real GDP in year 2 using year 1 as the base year.
   (c) Calculate the percentage change in real GDP between year 1 and year 2 using year 1 as the base year.
   (d) Calculate real GDP in year 1 and year 2 using year 2 as the base year.
   (e) Calculate the percentage change in real GDP between year 1 and year 2 using year 2 as the base year.

5. We have an economy with the data on the right.

   (a) Calculate GDP at market prices.
   (b) Calculate gross and net national income at market prices.
   (c) Obtain national savings and analyse its relationship with investments.
   (d) Calculate the net borrowing of the country.

Final consumption	10 000
Gross investment in fixed capital	7 200
Changes in inventories	-200
Consumption of fixed capital	1 000
Net income from and to the rest of the world	-50
Net transfers with the rest of the world	0
Exports	1 000
Imports	1 500