EXERCISES BUNDLE 2

1. CALCULATE GDP (3 APPROACHES) FOR THE FICTITIOUS ECONOMY WESTLAND

Imagine the simple economy of WESTLAND. It is a wooded country with 100,000 inhabitants that is internationally renowned for its artisanal wooden benches.

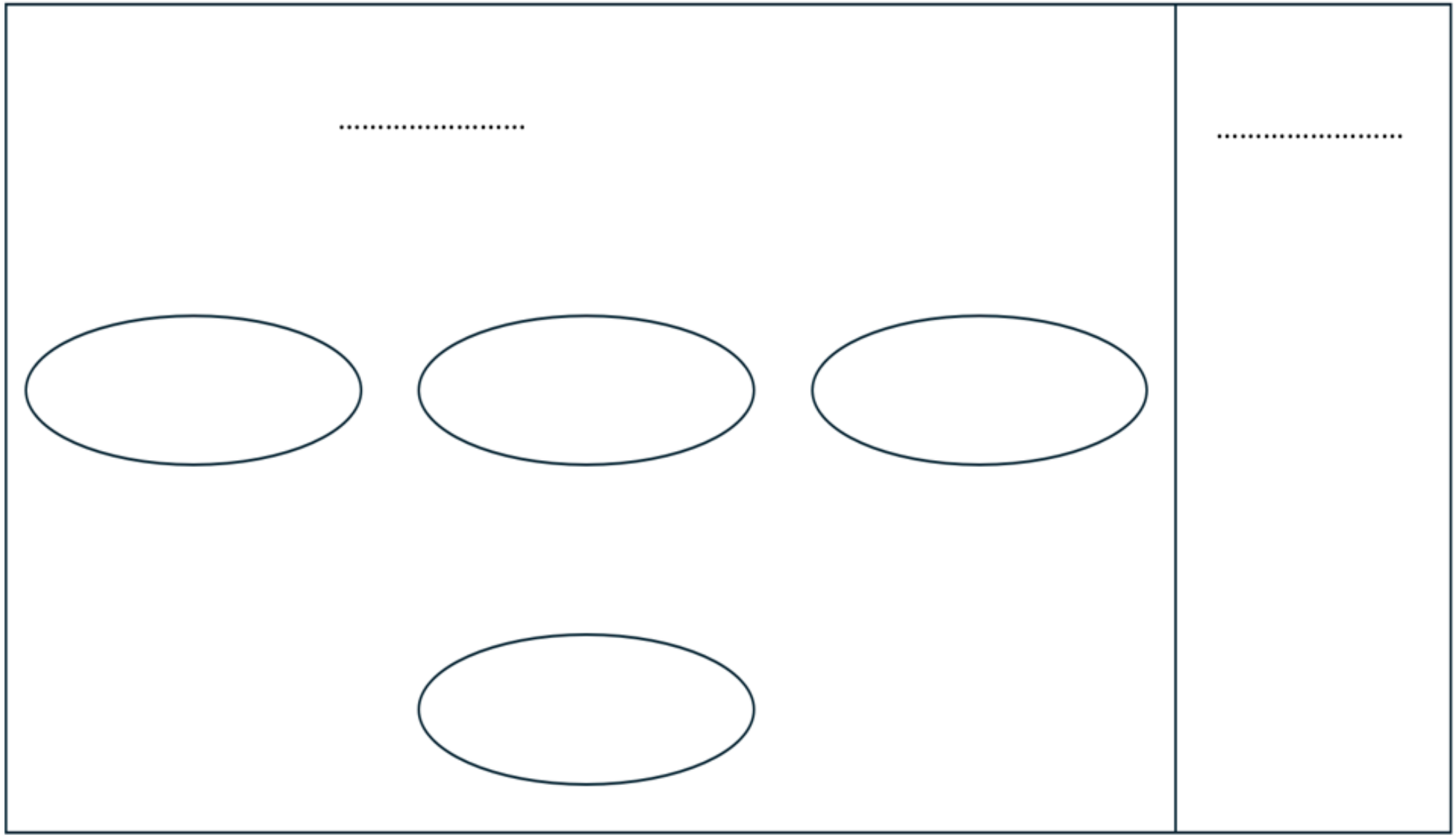
There are three sectors of activity: the primary sector includes forestry. The sector imports small tree seedlings from neighbouring OOSTLAND (population 140,000) worth €9.50 million and grows mature trees that are felled and sold to woodworking workshops for €72.70 million. The primary sector's personnel costs amount to €40.80 million.

The secondary sector comprises 10 wood workshops. They saw the trees into planks and make benches from them. Varnish, nails and other production supplies are purchased in OOSTLAND: £218.10 million.

A quarter of the total turnover of €480.40 million is exported. The rest is sold to retailers. Each wood workshop has personnel costs of €8.53 million.

The tertiary sector is the retail sector where the benches are sold. All benches end up in households in WESTLAND. The turnover of all shops is €1,120.70 million. 30% of the turnover is personnel costs.

QUESTION 1: DRAW THE CIRCULAR FLOW DIAGRAM



QUESTION 2: CALCULATE THE GDP

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GDP = ...

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GDP = ...

2. CALCULATE GDP (3 APPROACHES) FOR THE FICTITIOUS ECONOMY ORANGELAND

Orangeland is a small country with a warm climate internationally renowned for its production of tasteful orange juice.

Three sectors are active in this small economy:

- Agricultural sector: ten large orange farms grow oranges. The seeds needed to grow the oranges are imported from neighboring country Otherland: €7 million.

On the one hand, the farms produce the oranges that are purchased by the orange juice factories: €1,3 million per farm.

On the other hand, the farmers export oranges to Otherland where the oranges are used to produce sweets: €1,9 million per farm.

The annual personnel cost in the agricultural sector is €1 million per farm.

ORANGELAND

- Industrial sector: the orange juice factories produce orange juice based on the purchased oranges. They also import other ingredients such as sugar from Otherland. Total import = €8 million.

The turnover of the orange juice factories consists of two parts:

part 1: €55 million (that is 75% of the total orange juice turnover) is sold to the services sector

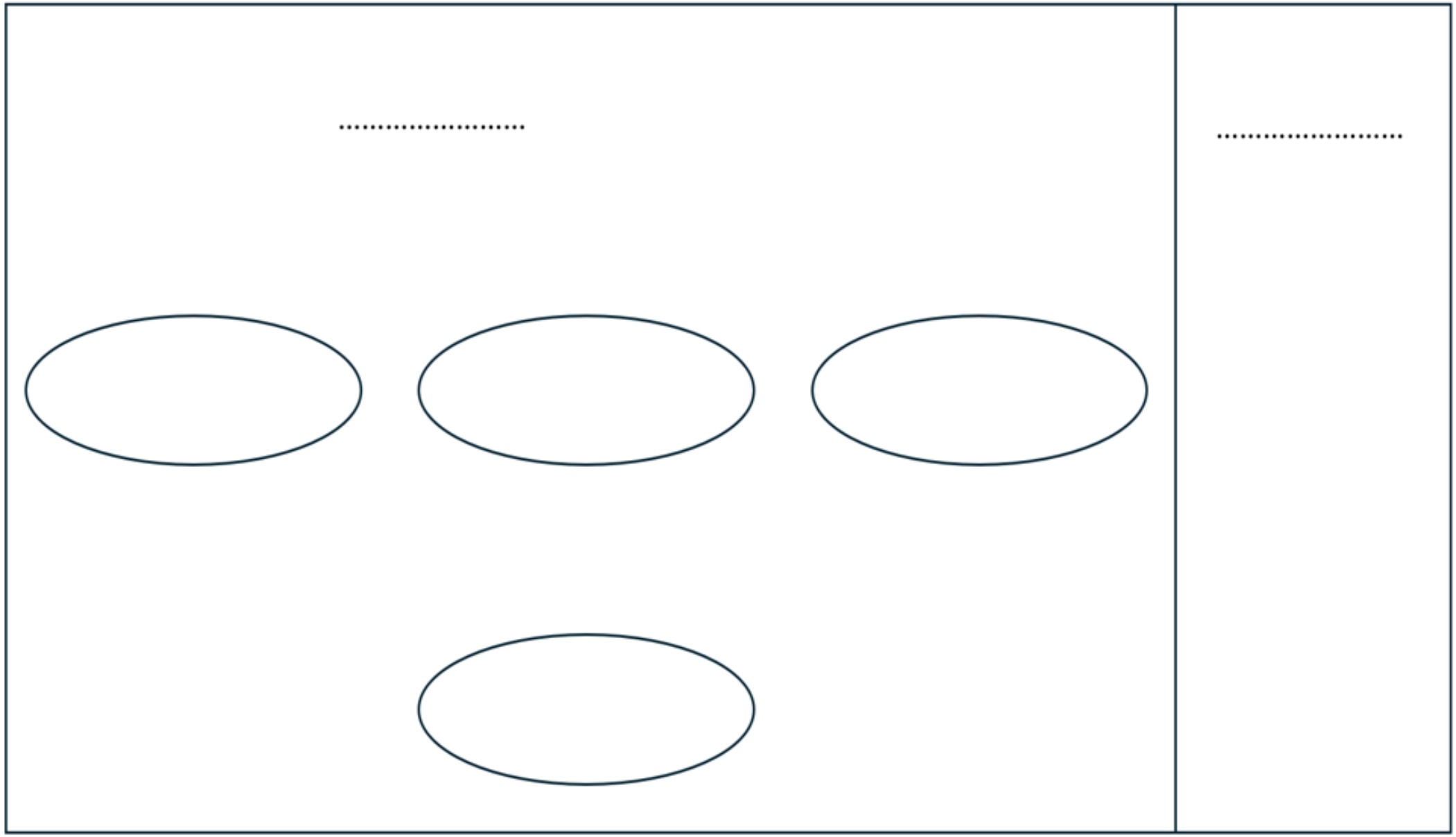
part 2: the rest of the orange juice turnover is exported to Otherland

The monthly personnel cost in the orange juice factories is €1,7 million.

- Services sector: The orange juice produced by the orange juice factories is sold by a wide range of juice bars in the country's capital. The horeca turnover is €126 million.

Annual personnel cost in horeca sector = €15 million.

QUESTION 1: DRAW THE CIRCULAR FLOW DIAGRAM



QUESTION 2: CALCULATE THE GDP

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GDP = ...

3. CALCULATE GDP (3 APPROACHES) FOR THE FICTITIOUS ECONOMY BINNENLAND

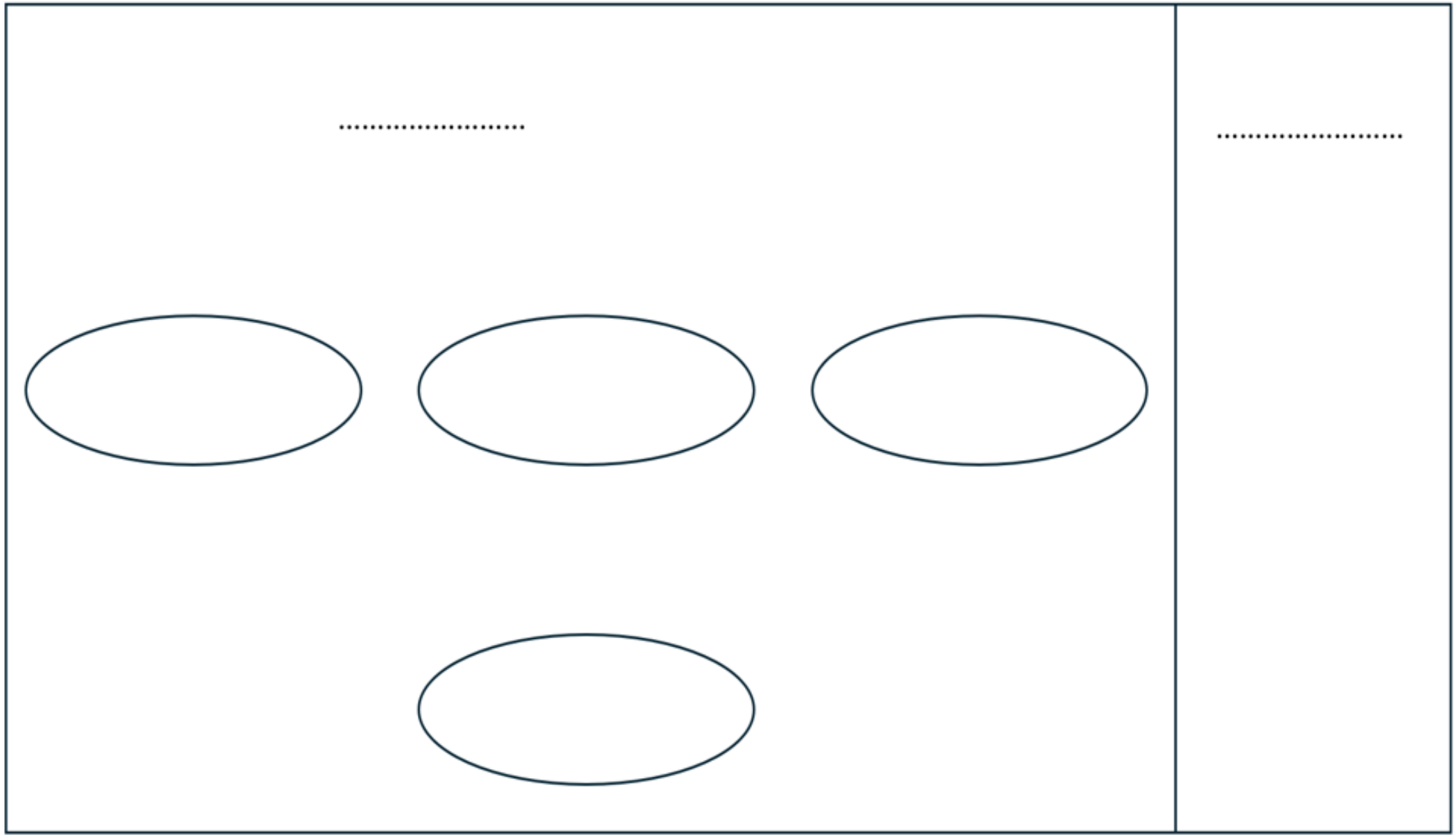
In a simple economy ‘BINNENLAND’, 3 businesses operate: Sarah's bakery, Fabrizio's butchery and Mauro's farm.

Sarah's turnover is €80,000. She sells bread to the families of ‘BINNENLAND’. She buys wheat flour from the farm for a value of €10,000. Sarah has two workers: their total wage cost is €50,000.

Fabrizio turns a turnover of €170,000. He buys meat from the farm for €40,000. He exports to ‘BUITENLAND’ for €30,000. The rest is bought by families from ‘BINNENLAND. The wage cost of the 2 workers in the butcher's shop is €70,000.

Mauro's farm does not just sell wheat flour and meat. He also sells vegetables. His customers are the families of ‘BINNENLAND’. They buy vegetables for €10,000. He himself buys seeds from ‘BUITENLAND’ for €10,000. The farm labour cost is €30,000.

QUESTION 1: DRAW THE CIRCULAR FLOW DIAGRAM



QUESTION 2: CALCULATE THE GDP

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GDP = ...

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GDP = ...

4. CALCULATE THE YEARLY ECONOMIC GROWTH (MANUALLY)

Prijstype en eenheid	In miljoenen kettingeuro's (referentiejaar 2020)			
Frequentie	Jaarlijks			
Periode	2021	2022	2023	2024
Indicator				
Bruto binnenlands product	492538,7	513517,7	519688,6	524983,7

SOURCE: NBB
MILLIONS €

EXAMPLE OF ECONOMIC GROWTH IN 2022 VERSUS 2021:

((GDP 2022 – GDP 2021) : GDPP 2021) * 100 =

((513.517,7 – 492.538,7) : 492.538,7) * 100 = 4,26%

ECONOMIC GROWTH 2023 versus 2022	
Formula	
Result	

ECONOMIC GROWTH 2024 versus 2023	
Formula	
Result	

5. CALCULATE THE YEARLY ECONOMIC GROWTH (EXCEL)

Go to the NBB website and find the series of annual GDP figures from your year of birth to the present.
1) Export this series to an Excel file.
2) Calculate the annual GDP growth for this series by entering the appropriate formula in your file.
3) Then create a line graph of GDP growth.
4) Finally, briefly discuss your findings in relation to the graph.

Attached is an example of this exercise for the period 1995-2005.

(DEZE OEFENING MAG IN HET NEDERLANDS WORDEN UITGEWERKT.)

1) EXPORTED DATA

Prijstype en eenheid	In miljoenen kettingeuro's (referentiejaar 2020)										
Aanpassing	Brutogegevens										
Frequentie	Jaarlijks										
Periode	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Indicator											
Bruto binnenlands product	314870,5	319031,3	331134,3	337630,6	349591,9	362585,2	366572,2	372829,2	376699	390151,7	399210

2) ECONOMIC GROWTH CALCULATION

Prijstype en eenheid	In miljoenen kettingeuro's (referentiejaar 2020)										
Aanpassing	Brutogegevens										
Frequentie	Jaarlijks										
Periode	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Indicator											
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Economische groei (jaarlijks, %)		1,32	3,79	1,96	3,54	3,72	1,10	1,71	1,04	3,57	2,32

3) LINE GRAPH

Prijstype en eenheid	In miljoenen kettingeuro's (referentiejaar 2020)										
Aanpassing	Brutogegevens										
Frequentie	Jaarlijks										
Periode	1995	1996	1997	1998	1999	2000	2001	2002	2003	2004	2005
Indicator											
Bruto binnenlands product	314870,5	319031,3	331134,3	337630,6	349591,9	362585,2	366572,2	372829,2	376699	390151,7	399210
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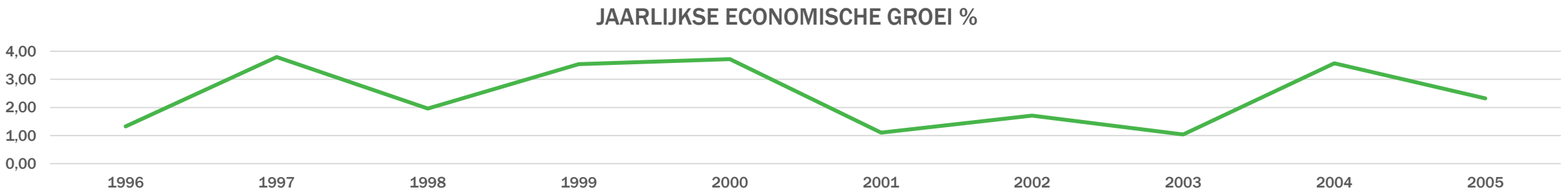

4) SHORT COMMENT

Over these 10 years, the Belgian economy grew by an average of 2.41% per year.
In 1997, 1999, 2000 and 2004, the economy experienced exceptionally strong growth of at least 3.5% per year. In 1997, this was the case in most rich countries, due to accelerated global trade. 1999 and 2000 were the years of the boom in the internet economy. 2004 was a year in which Belgium benefited from the accession of no fewer than 10 new Member States to the EU.

6. COMPLETE THE TABLE

2020 is reference year

Year	Volume (billions)	Price (€)	Nominal GDP (billions)	Real GDP (billions)	Economic growth (%)
2020	464		371,20		
2021	460	1,10			
2022		1,15			3,00
2023	490		637		
2024		1,30			3,50