NSS Exploring Economics *5 (3rd Edition)*
Consolidation Worksheets (SAMPLE)

Chapter 3 Macroeconomic problems

Test Yourself

3.1

The following table shows the composite CPI (CCPI) of Hong Kong from 2010 to 2017 (October 2014 to September 2015 = 100)

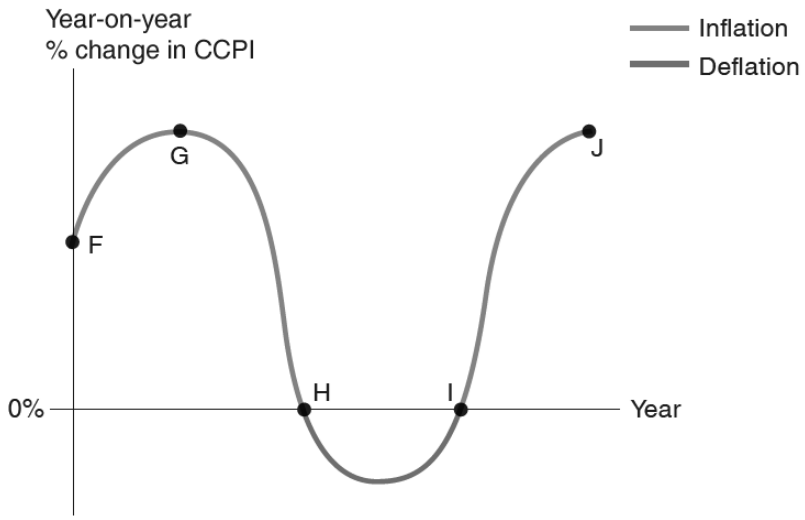
Complete the table. Determine if there was inflation or deflation in each year.

Year	2010	2011	2012	2013	2014	2015	2016	2017
CCPI	81.8	86.1	89.6	93.5	97.7	100.6	103.0	104.5
Inflation rate				4.35%				

Source: Census and Statistics Department

3.2

Refer to the following diagram. Which segment(s) of the curve demonstrate(s) features of disinflation?



Answer:

Disinflation is a kind of inflation with a (positive /negative) but (increasing / decreasing) inflation rate. Segment _____ in diagram demonstrates features of disinflation.

3.3

The CCPI of Hong Kong was 74.7 in 2006 and 103.0 in 2016.
With $100 pocket money, in which year could you buy more goods? Briefly explain with the concept of real value.

Answer:

Since the price level was (higher / lower) in 2006, we could buy (more / fewer) goods with $100. Thus, the real value (purchasing power) of money was (higher / lower) in 2006.

3.4

Suppose Siu Ming invests in a financial product to earn a fixed nominal interest rate. Complete the following table.

	Nominal interest rate	Expected inflation rate	Expected real interest rate	Actual inflation rate	Actual real interest rate
a.	6%		1%	2%	
b.	3%	2%			0%

3.5

Suppose Harry signed a contract to rent a small flat from the landlord at a monthly rate of $6,000. He agreed to pay the rent next month; the expected price index was 120. One month later, the actual price index was 125.

Refer to Harry's case above. Suppose the expected price index was 150 instead. Then, would Harry gain or lose due to the change in the price level? What about the landlord?

Answer:

Expected value (= _____) (> / <) Actual real value (= _____)
Harry would (gain / lose) because the actual real value of the rental payment he paid was (greater / smaller) than expected.
The landlord would (gain / lose) because the actual real value of the rental income she received was (greater / smaller) than expected.

3.6

Kelly deposited money into her fixed deposit account for a year for which she would receive a 5% annual interest rate. She expected the inflation rate to be 3%. One year later, the actual inflation rate was 4%.

Refer to Kelly's case. Suppose the expected inflation rate was 5% instead. Then, would Kelly gain or lose due to the unexpected change in the price level? What about the bank?

Answer:

Expected real interest rate (= _____) (> / <) Actual real interest rate (= _____)

As the actual real interest rate was (greater / smaller) than the expected real interest rate, Kelly would (gain / lose). This is because she would receive (more / less) than she expected. The bank would (gain / lose) because it would pay (more / less) than it expected.

3.7

During deflation, how would the real value of monetary assets change? Would holders of monetary assets gain or lose? Under what situation would holders of real assets gain?

Answer:

During deflation, the real value of monetary assets would (increase / decrease). The holders of monetary assets would (gain / lose). If the percentage (increase / decrease) in the nominal value of real assets was (greater / smaller) than the deflation rate, or if the nominal value of real assets (increased / decreased) or remained unchanged, the holders of real assets would gain.

3.8

The inflation rate in City X in 2018 was 3%. Suppose residents in the city did not expect any changes in the price level in 2018. Explain whether the following residents in City X would gain or lose.

a. In 2017, Peggy bought a bond which gives her a fixed interest every year.
b. In 2017, Oscar made an investment and expected a 5% nominal rate of return after one year. In 2018, the investment gave him a nominal rate of return of 8%.

Answer:

a. The actual inflation rate (= _____) was (greater / smaller) than the expected inflation rate (= _____).
   Peggy would (gain / lose) as the actual real interest rate she received was (higher / lower) than expected.

b. Expected real interest rate = _____

Actual real interest rate = _____

Thus, Oscar _____.

3.9

The following table shows the labour statistics of Hong Kong in the first quarter of 2018.

Statistics	Number
Employed population*	3,872,400
Unemployed population	112,100
Underemployed population	38,900

*Including foreign domestic helpers

Sources: Census and Statistics Department

Refer to the table above. If we do not include the number of foreign domestic helpers in our calculation, would the resulting unemployment rate be lower or higher than 2.81%?

Answer:

As all foreign domestic helpers are employed, the unemployed population would (increase / decrease / remain unchanged).

On the other hand, the labour force excluding foreign domestic helpers is (greater / smaller) than that including foreign domestic helpers. Therefore, the unemployment rate would be (higher / lower) than 2.81%.

Short questions

1.

What are the similarities and differences between

a. inflation and disinflation? (3 marks)

b. disinflation and deflation? (3 marks)

Answer:

a. Similarity:

They describe a _____ in the general price level. (1 mark)

Difference:

For inflation, the percentage increase in the general price level can be _____ _____. However, for disinflation, the percentage increase in the general price level must be _____. (2 marks)

b. Similarity:

They describe a _____ in the general price level. (1 mark)

Difference:

Disinflation describes a situation with a _____ in the general price level, but deflation describes a situation with a _____ in the general price level. (2 marks)

2.

*a. Explain whether the nominal interest rate is determined by the expected inflation rate or the actual inflation rate. (2 marks)

b. Under what condition will the expected real interest rate be negative? (2 marks)

Answer:

a. When a decision about future payments is made, the inflation rate in future (is / is not) known. (1 mark)

Hence, the nominal interest rate has to be determined by the (actual / expected) inflation rate. (1 mark)

b. Expected real interest rate = _____(1 mark)

When the nominal interest rate is (greater / smaller) than the _____ _____, the expected real interest rate is negative. (1 mark)

3.

In City A, people did not expect any change in the price level in 2018. However, the deflation rate turned out to be 2%. Explain whether the following people would gain or lose.

a. An owner of a piece of land who rented the land to a farmer at a fixed rate (2 marks)

b. An investor who expected a nominal rate of return on an investment projected to be 10% in 2018 while the actual nominal rate of return was only 9% (3 marks)

Answer:

a. As there was (anticipated / unanticipated) deflation, the _____ (purchasing power) of the rent received by the owner would be (greater / smaller) than _____. Hence, the owner would (gain / lose). (2 marks)

b. Expected real rate of return

= _____

= _____ (1 mark)

Actual real rate of return

= _____

= _____ (1 mark)

The investor (gained / lost) because the actual real rate of return (= _____) was (greater / smaller) than the expected real rate of return (= _____). (1 mark)

4.

a. Despite a fall in the unemployment rate, the number of unemployed persons increases. Explain how this may happen. (3 marks)

b. State **TWO** costs of unemployment. (2 marks)

Answer:

a. Unemployment rate =

_____

(1 mark)

If the percentage increase in the number of unemployed persons is (greater / smaller) than the percentage (increase / decrease) in the _____, the unemployment rate will decrease. (2 marks)

b. ● _____

_____ (2 marks)

● _____

_____ (2 marks)

5.

What is a recession? List **THREE** phenomena that can be observed during a recession.

(4 marks)

Answer:

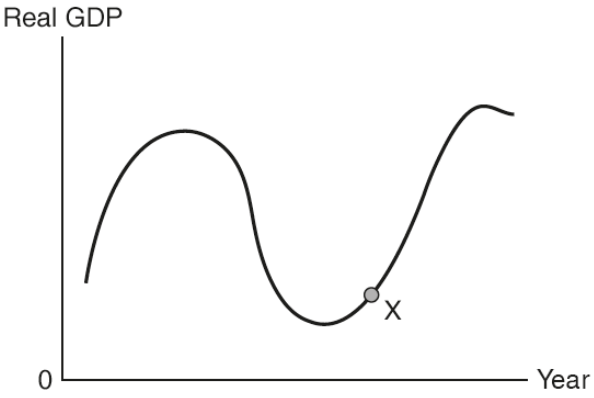
A recession is a phase of a business cycle during which _____

_____. (1 mark)

- _____ (1 mark)
- _____ (1 mark)
- _____ (1 mark)

Structured Questions

1.



a. i. Identify in which phase of a business cycle Point X is. (1 mark)

ii. Besides the feature related to real GDP, suggest **TWO** economic features which can be observed in this phase. (2 marks)

b. Study the following table.

Items	Year 3
Employed population (million)	92
Underemployment rate (%)	7
Labour force (million)	100

i. Calculate the unemployed population and the underemployed population. (4 marks)

ii. (1) Catherine, who becomes disabled after an accident and resigns from her job (2 marks)

(2) Siu Ming, who follows his doctor's advice to take sick leave for two weeks (2 marks)

(3) William, who works only 30 hours per week (2 marks)

Answer:

a. i. _____ (1 mark)

ii. ● _____ (1 mark)

● _____ (1 mark)

b. i. Unemployed population

= _____ (2 marks)

Underemployed population

= _____ (2 marks)

ii. (1) Catherine (is / is not) classified as unemployed because _____

_____. (2 marks)

(2) Siu Ming (is / is not) classified as unemployed because _____

_____. (2 marks)

(3) William (is / is not) classified as unemployed because _____

_____. (2 marks)

2.

a. The following shows the nominal values of the assets that Ka Ming owned and the price levels in Year 1 and Year 2.

	Year 1	Year 2
Cash (in nominal value)	$2 million	$2 million
Residential flat (in nominal value)	$3 million	$2.4 million
Price level	100	90

i. Using Year 1 as the base year, calculate the real values of Ka Ming's cash and residential flat in Year 1 and Year 2. (4 marks)

ii. Explain whether Ka Ming gained or lost from the change in the price level. (4 marks)

b. i. In Year 3, Ka Ming put his money into a time deposit account. If the nominal deposit rate was 5% and the actual real deposit rate was 1%, what would the actual inflation rate be? (2 marks)

*ii. Based on the result in (b)(i), explain whether the following would gain or lose if the expected inflation rate was 6%.

(1) A household with an outstanding home mortgage loan of $2 million at a fixed interest rate (4 marks)

(2) A firm which has signed a contract to supply packed lunches to a school at a fixed price during the year (4 marks)

Answer:

a. i. Since Year 1 is the base year, nominal values in Year 1 were equal to their _____. Hence, in Year 1, the real value of Ka Ming's cash was $_____ and that of his flat was $_____. (2 marks)

The real value of Ka Ming's cash in Year 2

= _____ (1 mark)

The real value of Ka Ming's flat in Year 2

= _____ (1 mark)

ii. The real value of Ka Ming's assets in Year 1

= _____ (1 mark)

The real value of Ka Ming's assets in Year 2

= _____(1 mark)

He (gained / lost) because the (real / nominal) value of his assets (increased / decreased) by $_____. (2 marks)

b. i. _____ = _____ − Actual inflation rate

⇒ _____ = _____ − Actual inflation rate

⇒ Actual inflation rate = _____ (2 marks)

ii. (1) The household was a (payer / recipient) of fixed future payments. (1 mark)

Since the actual inflation rate (i^a) of _____% was (greater / smaller) than the expected inflation rate (i^e) of _____%, the actual real interest rate ($r^a = n - i^a$) paid by the household would be (higher / lower) than expected ($r^e = n - i^e$). (2 marks)

Hence, the household would (gain / lose). (1 mark)

(2) The firm was a (payer / recipient) of fixed future payments. (1 mark)

Since the actual inflation rate of _____% was (greater / smaller) than the expected inflation rate of _____%, the actual real values of the firm's fixed future receipts would be (larger / smaller) than expected. (2 marks)

Hence, the firm would (gain / lose). (1 mark)

Suggested answers

Test yourself

3.1

Year	2010	2011	2012	2013	2014	2015	2016	2017
CCPI	81.8	86.1	89.6	93.5	97.7	100.6	103.0	104.5
Inflation rate	=	**5.26% Inflation**	**4.07% Inflation**	**4.35 %**	**4.49% Inflation**	**2.97% Inflation**	**2.39% Inflation**	**1.46% Inflation**

3.2

Disinflation is a kind of inflation with a **positive** but **decreasing** inflation rate. Segment **GH** in diagram demonstrates features of disinflation.

3.3

Since the price level was **lower** in 2006, we could buy **more** goods with $100. Thus, the real value (purchasing power) of money was **higher** in 2006.

3.4

	Nominal interest rate	Expected inflation rate	Expected real interest rate	Actual inflation rate	Actual real interest rate
a.	6%	**5%**	1%	2%	**4%**
b.	3%	2%	**1%**	**3%**	0%

3.5

Expected value $\left(= \frac{\$6{,}000}{150} \times 100 = \$4{,}000\right)$ < Actual real value (= **$4,800**)

Harry would **lose** because the actual real value of the rental payment he paid was **greater** than expected.

The landlord would **gain** because the actual real value of the rental income she received was **greater** than expected.

3.6

Expected real interest rate **(= 5% – 5% = 0%)** < Actual real interest rate **(= 1%)**

As the actual real interest rate was **greater** than the expected real interest rate, Kelly would **gain**. This is because she would receive **more** than she expected. The bank would **lose** because it would pay **more** than it expected.

3.7

During deflation, the real value of monetary assets would **increase**. The holders of monetary assets would **gain**. If the percentage **decrease** in the nominal value of real assets was **smaller** than the deflation rate, or if the nominal value of real assets **increased** or remained unchanged, the holders of real assets would gain.

3.8

a. The actual inflation rate (= **3%**) was **greater** than the expected inflation rate (= **0%**). Peggy would **lose** as the actual real interest rate she received was **lower** than expected.

b. Expected real interest rate = **5% – 0% = 5%**
   Actual real interest rate = **8% – 3% = 5%**
   Thus, Oscar **did not gain or lose**.

3.9

As all foreign domestic helpers are employed, the unemployed population would **remain unchanged**. On the other hand, the labour force excluding foreign domestic helpers is **smaller** than that including foreign domestic helpers. Therefore, the unemployment rate would be **higher** than 2.81%.

Short questions

1.

a. Similarity:

They describe a **persistent increase** in the general price level. (1 mark)

Difference:

For inflation, the percentage increase in the general price level can be **increasing, constant or declining**. However, for disinflation, the percentage increase in the general price level must be **declining**. (2 marks)

b. Similarity:

They describe a **persistent change** in the general price level. (1 mark)

Difference:

Disinflation describes a situation with a **persistent increase** in the general price level, but deflation describes a situation with a **persistent decrease** in the general price level. (2 marks)

2.

a. When a decision about future payments is made, the inflation rate in future **is not** known. (1 mark)

Hence, the nominal interest rate has to be determined by the **expected** inflation rate. (1 mark)

b. Expected real interest rate = **Nominal interest rate – Expected inflation rate** (1 mark)

When the nominal interest rate is **smaller** than the **expected inflation rate**, the expected real interest rate is negative. (1 mark)

3.

a. As there was **unanticipated** deflation, the **actual real value** (purchasing power) of the rent received by the owner would be **greater** than **expected**. Hence, the owner would **gain**. (2 marks)

b. Expected real rate of return

= **Expected nominal rate of return – Expected inflation rate**

= **10% – 0% = 10%** (1 mark)

Actual real rate of return

= **Actual nominal rate of return – Actual inflation rate**

= **9% – (–2%) = 11%** (1 mark)

The investor gained because the actual real rate of return (= **11%**) was **greater** than the expected real rate of return (= **10%**). (1 mark)

4.

a. Unemployment rate = $\frac{\textbf{Number of unemployed persons}}{\textbf{Labour force}} \times \textbf{100\%}$ (1 mark)

If the percentage increase in the number of unemployed persons is **smaller** than the percentage **increase** in the **labour force**, the unemployment rate will decrease. (2 marks)

b.
- **The living standard of the unemployed and their families falls.**
- **Family problems such as family disputes, marriage breakdown, domestic violence and suicides may result.**
- **The knowledge, skills and experience of the unemployed will be lost or become outdated.**
- **The aggregate output of the economy drops.**
- **Social problems may appear, e.g., increases in the crime rate and political instability.**

(Any TWO of the above or other reasonable answers. 1 mark × 2 = 2 marks)

5.

A recession is a phase of a business cycle during which **real GDP drops continuously**. (1 mark)

Phenomena:

- **Fall in real GDP**
- **Fall in inflation rate / Rise in deflation rate**
- **Rise in unemployment rate**
- **Fall in government tax revenues**
- **Fall in private consumption expenditures / gross investment expenditures**
- **Fall in volume of imports**
- **Fall in firms' profits**

(Any THREE of the above or other related economic features. 1 mark × 3 = 3 marks)

Structured Questions

1.

a. i. **Expansion** (1 mark)

ii.
- **Rise in inflation rate / Fall in deflation rate**
- **Fall in unemployment rate**
- **Rise in government tax revenues**
- **Rise in private consumption expenditures / gross investment expenditures**
- **Rise in volume of imports**
- **Rise in firms' profis**

(Any TWO of the above or other related economic features. 1 mark × 2 = 2 marks)

b. i. Unemployed population = **Labour force – Employed population**
= 100 million – 92 million = 8 million (2 marks)

Underemployed population = **Labour force × Underemployment rate**
= 100 million × 7% = 7 million (2 marks)

ii. (1) Catherine **is not** classified as unemployed because **she is not available for work**. (2 marks)

(2) Siu Ming **is not** classified as unemployed because **he has a formal job attachment**. (2 marks)

(3) William **is not** classified as unemployed because **he has a job for pay**. (2 marks)

2.

a. i. Since Year 1 is the base year, nominal values in Year 1 were equal to their **real values**. Hence, in Year 1, the real value of Ka Ming's cash was $**2 million** and that of his flat was $**3 million**. (2 marks)

The real value of Ka Ming's cash in Year 2
= **[($2 million)/90] × 100 = $2.22 million** (1 mark)

The real value of Ka Ming's flat in Year 2
= **[($2.4 million)/90] × 100 = $2.67 million** (1 mark)

ii. The real value of Ka Ming's assets in Year 1
= **$2 million + $3 million = $5 million** (1 mark)

The real value of Ka Ming's assets in Year 2
= **$2.22 million + $2.67 million = $4.89 million** (1 mark)

He **lost** because the **real** value of his assets **decreased** by $**0.11 million**. (2 marks)

b. i. **Actual real interest rate** = **Nominal interest rate** − Actual inflation rate

⇒ **1%** = **5%** − Actual inflation rate

⇒ Actual inflation rate = **5% – 1% = 4%** (2 marks)

ii. (1) The household was a **payer** of fixed future payments. (1 mark)

Since the actual inflation rate (i^a) of **4**% was **smaller** than the expected inflation rate (i^e) of **6**%, the actual real interest rate ($r^a = n – i^a$) paid by the household would be **higher** than expected ($r^e = n – i^e$). (2 marks)

Hence, the household would **lose**. (1 mark)

(2) The firm was a **recipient** of fixed future payments. (1 mark)

Since the actual inflation rate of **4**% was **smaller** than the expected inflation rate of **6**%, the actual real values of the firm's fixed future receipts would be **larger** than expected. (2 marks)

Hence, the firm would **gain**. (1 mark)