Achievement Standard 91222

Analyse inflation using economic concepts and models

ECONOMICS

2.1

Externally assessed 4 credits

What do you need to know to achieve this standard?

Inflation concepts

- Inflation, deflation and disinflation
- Real and nominal values
- General price rises versus price rises in individual markets

Causes of inflation

- Quantity theory of money
- Aggregate supply/aggregate demand (AS/AD) model
- The business (trade) cycle model

Impacts of inflation

- Impact of inflation on firms
- Impact of inflation on households

What do you need to do to achieve this standard?

It is worth noting that almost all students who attempt *all* the questions will achieve this standard. Each question gives you an opportunity to provide answers which will be used to decide your overall grade.

You will also need to do most of the following things.

- Define economic terms and identify examples of them.
- Avoid using words like 'stuff' instead of 'goods and services'.
- Clearly label the axes, the curves and the equilibrium on the AS/AD model.
- Identify the causes of changes in both AS and AD.
- Identify the impacts of changes in AS and AD on the price level.
- Use dotted lines, labels, and arrows when showing changes on the AS/AD model.
- Use a ruler and a pen when drawing diagrams or showing changes to diagrams.
- Remember the formula to calculate a real value.
- Distinguish between a cause of inflation and an impact of inflation.

To achieve this standard with Merit you will also need to do most of these things.

- Explain economic concepts and terms in more detail using examples from the resource material.
- Use accurate economic terms like 'aggregate demand' (instead of 'demand') and 'aggregate supply' (instead of 'supply').
- Avoid repeating yourself.
- Explain the difference between a general price rise and a price rise in a particular market.

- Use the AS/AD model to explain what has caused a curve to shift and what happens to the price level as a result of the shift.
- Refer to the labels you use to identify changes in curves or equilibrium when explaining the changes you have made.
- Avoid simply rewriting the question. Make sure you have actually answered it by rereading the question after writing your answer.
- Demonstrate a clear understanding of the difference between the causes of inflation and the impacts of inflation.

To achieve this standard with Excellence you will also need to do the following things.

- Give all appropriate detail in your answers and answer almost all questions correctly.
- In your explanations, link all of the relevant ideas from the question.
- Refer to the graphs and the resource material in answers.
- Demonstrate a comprehensive understanding by linking the causes of inflation with the impacts of inflation on various groups in society – connect the main points in the question.
- Write concise answers which answer the question directly.

Achievement criteria

Achievement	Achievement with Merit	Achievement with Excellence
Analyse inflation using economic concepts and models.	Analyse inflation in depth using economic concepts and models.	Analyse inflation comprehensively using economic concepts and models.

The three levels of achievement

'Analyse' means you need to:

- identify, define or describe inflation concepts
- provide an explanation of causes of changes in inflation using economic models
- provide an explanation of the impacts of changes in inflation on various groups in New Zealand society.

'Analyse in depth' means you need to:

- provide a detailed explanation of causes of changes in inflation using economic models
- provide a detailed explanation of the impacts of changes in inflation on various groups in New Zealand society.

'Analyse comprehensively' means you need to:

- analyse causes of changes in inflation by comparing and contrasting their impact on inflation
- analyse the impacts of changes in inflation by comparing and contrasting the impact on various groups in New Zealand society
- analyse changes shown on economic models by integrating them into detailed explanations.

Inflation concepts

Inflation, deflation and disinflation

Inflation means an increase in the general level of prices. This means that money loses its value over time so you cannot buy as much with the income you receive.

Question Three

Year 2010
Ans. p. 106

a. State the Quantity Theory of Money **equation** showing the relationship between the Money Supply, the Price Level, Real Output and the Velocity of Money Circulation.

The global financial crisis has resulted in a decrease in funds available for borrowing. This has resulted in a decrease in the Velocity of Money Circulation.

b. **Fully explain** how increases in the **money supply** would affect the **price level** during the global financial crisis. In your answer, you should refer to the **Quantity Theory of Money**.

c. **Fully explain** how the **effect** on the price level of an increase in the money supply is likely to be different in a **boom** compared to in a **recovery** period of the business cycle. In your answer, you should refer to the **Quantity Theory of Money**.

The aggregate supply/aggregate demand (AS/AD) model

Cost-push inflation

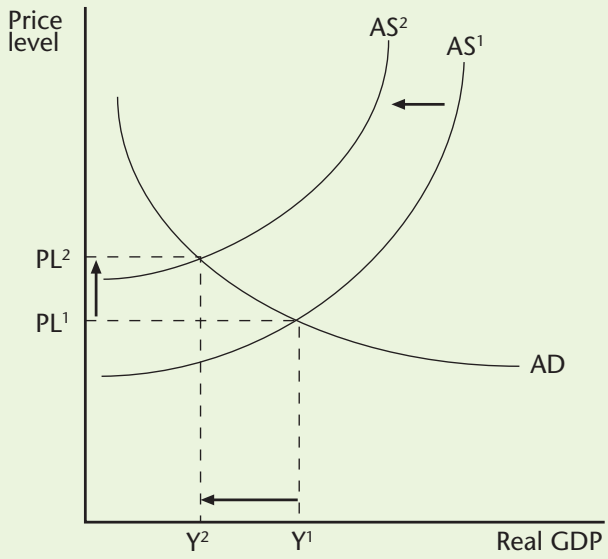
Cost-push inflation is the result of a decrease in aggregate supply. This causes the AS curve to shift to the left and as a result there is an increase in the price level.

Remember to draw the arrows and to label both curves, the original equilibrium PL^1 and Y^1, and the new equilibrium PL^2 and Y^2

Aggregate supply will decrease (shift left) when there is:

- a rise in the cost of imported raw materials
- a decrease in productivity
- a rise in nominal wages
- a rise in GST
- a rise in the price of oil
- a depreciation in the exchange rate.

Cost-push inflation



Demand-pull inflation

Demand-pull inflation is the result of an increase in aggregate demand. This causes the AD curve to shift to the right and as a result there is an increase in the price level.

Consumption (C) increases if:

- incomes rise
- income taxes fall
- interest rates fall
- inflationary expectations increase.

Investment (I) increases if:

- interest rates fall
- business confidence rises (e.g. when businesses expect sales to increase).

Government spending (G) increases when the government chooses to spend more.

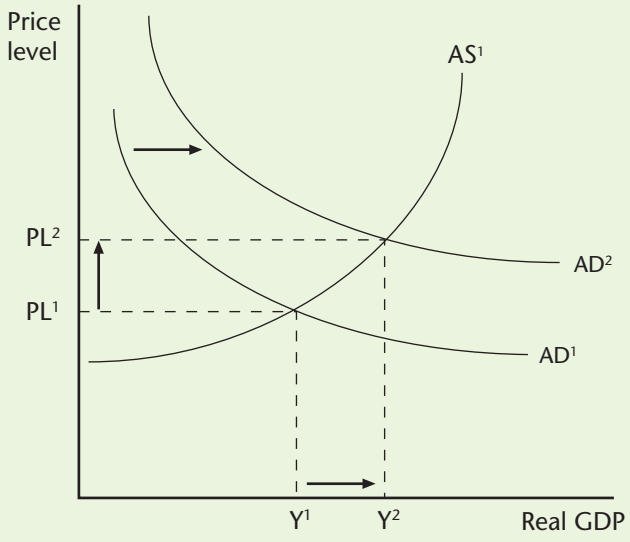
Exports (X) increase when:

- the exchange rate falls
- economic growth in our trading partners rises.

Imports fall when:

- incomes in New Zealand fall
- the exchange rate falls.

Demand-pull inflation



$$AD = C + I + G + (X - M)$$

International trade

International Trade: Trade between countries, e.g. New Zealand exporting dairy products to Australia or buying electronics from Korea.

Exports: Goods produced in New Zealand and sold overseas.

Imports: goods brought to New Zealand from other countries.

International trade in services can occur in different ways:

- consumers from another country come to New Zealand, e.g. students for education, or tourists
- a designer completes work at a desk in New Zealand and sends it to a client overseas
- a firm sets up a branch in another country, e.g. a bank
- a professional travels to another country to offer advice, e.g. a specialist surgeon.

Whenever a service is provided to an overseas customer, whether that customer is in New Zealand (onshore services) or overseas (offshore services), the service is exported.

Services exported from New Zealand include tourism, education, construction; postal, legal, and architectural services.

NZ's Top 10 Exports (2012)	
Rank	**Commodity**
1	Dairy products
2	Meat
3	Timber
4	Crude oil
5	Mechanical equipment
6	Fruit
7	Wine
8	Seafood
9	Electrical eqipment
10	Aluminium

NZ's Top 10 Imports (2012)	
Rank	**Commodity**
1	Petroleum
2	Mechanical equipment
3	Vehicles
4	Electrical equipment
5	Plastics
6	Optical and medical equipment
7	Pharmaceutical products
8	Paper products
9	Iron and steel
10	Aircraft

Export partners

Since 1990 exports to Asia-Pacific countries have increased, particularly to China, Hong Kong, Malaysia, Singapore and South Korea. Exports to Western countries (USA, UK, European countries) have fallen.

Top 10 Export Countries (2012)	
Rank	**Country**
1	Australia
2	People's Republic of China
3	United States of America
4	Japan
5	Republic of Korea
6	United Kingdom

7	Malaysia
8	Hong Kong (SAR)
9	Singapore
10	Indonesia

Import partners

Since 1990 there has been strong growth in imports from Asia-Pacific countries, particularly China, Singapore, Hong Kong, Taiwan and South Korea. These are all countries with which New Zealand has signed trade agreements.

Top 10 Import Countries (2012)	
Rank	**Country**
1	People's Republic of China
2	Australia
3	United States of America
4	Japan
5	Singapore
6	Germany
7	Malaysia
8	Republic of Korea
9	Thailand
10	United Kingdom

Free Trade Agreement

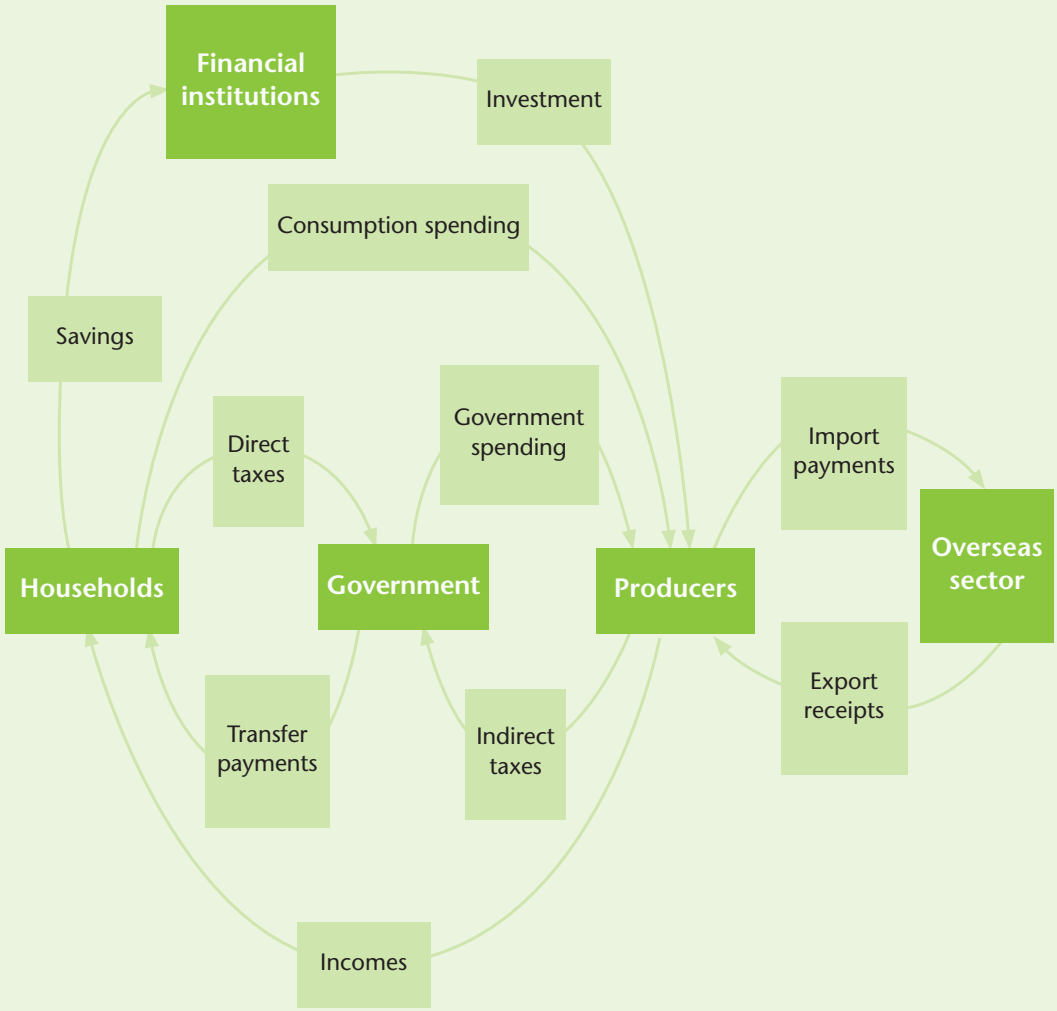
An arrangement between countries to remove trade barriers between them.

In 2013 New Zealand had trade agreements with:

- Hong Kong, China
- Malaysia
- The ASEAN-Australia Free Trade Area (ASEAN: Association of Southeast Asian Nations)
- China
- Thailand
- Singapore
- Australia

Real flows are the flows of goods and resources. Another common version of the model with only **money** flows is shown below:

The Circular Flow Model showing only money flows



Injections and leakages from the circular flow

Injections refer to the factors which will increase economic activity. These are increases in:

- Investment (I)
- Government spending (G)
- Exports (X)

Leakages, or withdrawals, refer to the factors which will decrease economic activity. These are increases in:

- Savings (S)
- Taxation (T)
- Imports (M)

Questions: Using the Circular Flow Model to illustrate economic growth

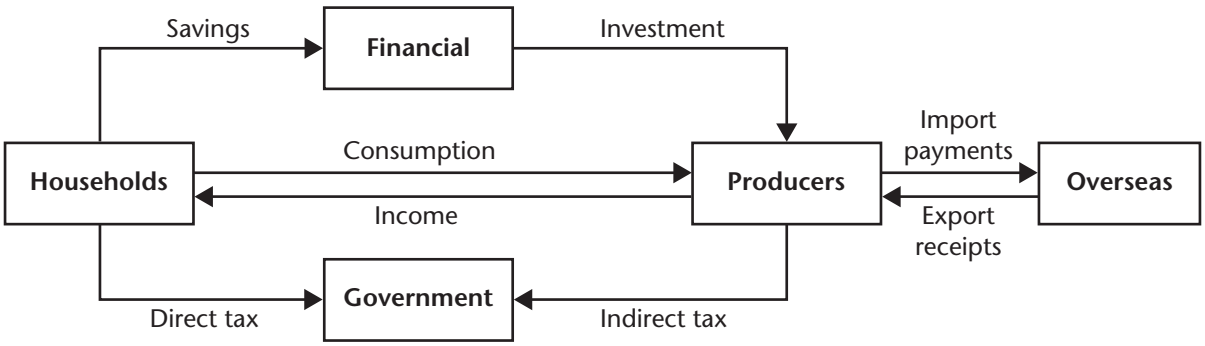
Year 2013
Ans. p. 117

Question One

> ... the trading partner outlook remains weak. Many European economies are in recession.
>
> Source (adapted): https://zen.nzherald.co.nz/media/webcontent/document/pdf/201237/RB.pdf

Complete questions **a.** and **b.** to comprehensively analyse the effect on economic growth of New Zealand's European trading partners being in recession, and the effect of an increase in business confidence.

Model One
Circular flow model for the New Zealand economy



a. Explain in detail which money flow in Model One would be directly affected by New Zealand's European trading partners being in recession.

The effects of economic growth

The benefits of economic growth

- increased production
- increased investment
- more jobs and more employment
- higher incomes
- increased savings
- higher tax revenue for the government
- more public goods and lower public debt.

The negative effects of economic growth

- resource depletion
- increased pollution
- more pressure on the environment
- higher costs of compliance
- higher levels of stress
- traffic congestion
- overcrowding in tourist areas
- uneven impact
- inflation.

The impact of economic growth on various elements in New Zealand society

Affected element	Positive impacts	Negative impacts
Households	More jobs Higher incomes Greater range of goods and services available New technologies	Increased pollution Traffic congestion Higher level of stress Overcrowding Incomes inequality
Businesses	Increased demand for goods Increased sales and profit More investment More spending on R & D	Higher costs of complying with regulations Higher costs of resources Shortages of resources
Government	Higher tax revenue More spending on public goods Lower public debt	Increased spending on regulating and monitoring resource use
Environment	Greater awareness of environmental issues Sustainable resource use Greater recycling	Resource depletion Destruction of natural habitats Increased pollution More exploration for resources

NCEA practice

Questions
The effects of economic growth

Year 2013
Ans. p. 118

Question One

The purpose of the Emissions Trading Scheme is to reduce the amount of greenhouse gases emitted in New Zealand. This is done by charging producers who emit greenhouse gases while doing certain activities.

Source (adapted): www.climatechange.govt.nz/emissions-trading-scheme/about/basics.html

Fonterra lobbied to keep agriculture out of the Emissions Trading Scheme. It argued the increased costs to farmers would dent their profitability, reduce milk production, and curb investment in farming.

Source (adapted): www.stuff.co.nz/sunday-star-times/business/5713082/Emissions-trading-schemers

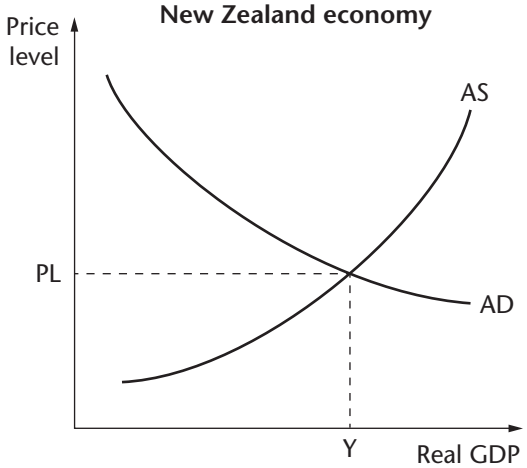
Complete questions **a.** and **b.** to comprehensively analyse the effects of the Emissions Trading Scheme.

a. Explain in detail how the increased costs of the Emissions Trading Scheme (ETS) for the agricultural sector may affect economic growth.

In your answer:

- on the graph below, show how the increased costs for the agricultural sector will affect Real GDP
- explain in detail the changes you have made on the graph.

Graph: AS/AD Model of the New Zealand economy



Answers and explanations

Achievement Standard 91222 (Economics 2.1): Analyse inflation using economic concepts and models

Inflation concepts

Question One

p. 3

a. Disinflation (A)

b. Inflation occurs when there is an increase in the general level of prices. An increase in the price of bottled water is only an increase in the price of one particular good, which is not inflation. Since bottled water is not used in the production of many other goods and services, an increase in the price of bottled water will not cause the prices of many other goods and services to increase and so is unlikely to result in inflation. (M)

Question Two

p. 4

a. Deflation (A)

b. Inflation is an increase in the general level of prices and not an increase in the price of a particular good. An increase in the price of overseas packaged holidays affects only one good and is therefore not inflation. (M)

Question Three

p. 4

a. i. Deflation.
   ii. Inflation.
   iii. Inflation.
   iv. Disinflation. (A – three correct)

b. A decrease in the general price level. (A)

c. Inflation is an increase in the general level of prices and not an increase in the price of a particular good. An increase in the price of oil will have an impact on the prices of many goods as associated transport and production costs increase, and this causes inflation. A 37% increase in the price of butter will not impact much on the prices of other goods, and so is less likely to cause inflation. (M)

Question Four

p. 5

a. A Inflation.
   B Deflation.
   C Inflation.
   D Disinflation. (A – three correct)

b. A fall in the rate of inflation from one period to the next. (A)

c. An increase in the general price level. (A)

The quantity theory of money

Question One

p. 6

a. M: Money Supply is the value of funds in circulation. This includes notes and coins and money held in accounts with banks or other financial institutions.

   V: Velocity of Circulation is the rate at which money is spent.

   P: Price level is the 'average' price of all goods produced in the economy

   Q: Real Output is the level of production (or output) in the economy.

b. The Quantity Theory of Money states that MV = PQ. If the Velocity of Circulation (V) and Real Output (Q) remain constant then an increase in the Money Supply (M) will cause an increase in the Price Level (P) of the same proportion, which is inflation. When there is more money available, but no increase in the amount of goods available, the price of the goods will increase. (M)

c. A reduction in consumer confidence is likely to cause consumers and households to increase their savings or reduce their debt. Either way, there is also likely to be a decrease in their spending and a slowdown in the velocity of circulation (V).

   Total spending = M × V. When an increase in the money supply is accompanied by a reduction in the velocity of circulation, there will a smaller increase in total spending than if the money supply increases while the velocity of circulation remains unchanged.

   Since the Quantity Theory of Money states that MV = PQ and we assume that the level of output (Q) remains unchanged, any change in the price level (P) will be caused by M × V. If M increases while V is unchanged, then P will increase. If some of the increase in M is offset by a fall in V, the overall effect on P will be smaller. (E)

Question Two

p. 8

The Quantity Theory of Money is MV=PQ.

An increase in the money supply (M) may cause an increase in the velocity of circulation (V) if people expect prices to begin rising and so spend before the purchasing power of their money falls. An increased money supply combined with an increase in the velocity of circulation will cause total spending (M × V) to increase, and the level of output (Q) may increase in response to the increased demand. If the level of output is less than the increased spending, it will create some inflationary pressure so the price level (P) will also rise.

If the economy is in the recovery stage of the business cycle, it will be producing well below capacity so there will be a lot of unemployed or underemployed resources. Output will be able to be increased without significant increases in the cost of resources so the impact of the increase in the money supply on the price level will be less than if the economy was nearer the boom phase of the business cycle when inflationary pressure would be greater. (E)

Question Three

p. 9

a. $M \times V = P \times Q$ [or $MV = PQ$] (A)

b. During the global financial crisis there was a decrease in the velocity of money circulation (V). Because of this, increases in the money supply (M) may not have had any effect on the price level (P) if the increase in M was offset by a decrease in V (so no overall change in M × V) while the level of output (Q) remained the same (so no overall change in P × Q). The overall impact on the price level would depend on how much the fall in V was relative to the rise in M. (M)

c. In the boom period of the business cycle, unemployment is low and household incomes are rising, so spending by both households and firms is rising, causing the velocity of money circulation to increase. An increase in the money supply at the same time means M × V will be increasing, and if output remains at about the same level (Q will not be able to increase much as the economy will be operating near capacity) then the price level will increase to maintain the relationship MV = PQ.

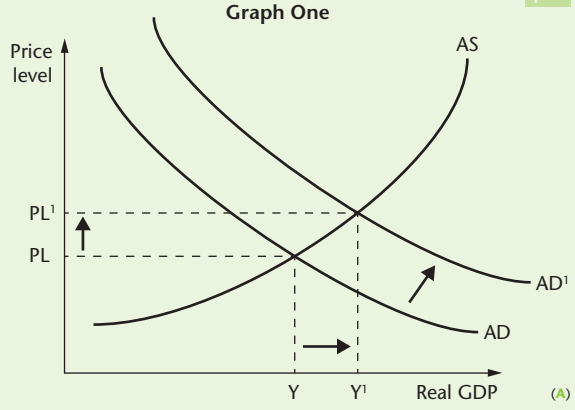
In the recovery period of the business cycle, unemployment is higher and household spending is lower so the velocity of money circulation is also lower. An increase in the money supply at this time will be offset by the lower velocity of money circulation. Because of spare capacity in the economy, Q will be able to increase, which will reduce any impact on P. (E)

The aggregate supply/aggregate demand (AS/AD) model

Question One

p.11

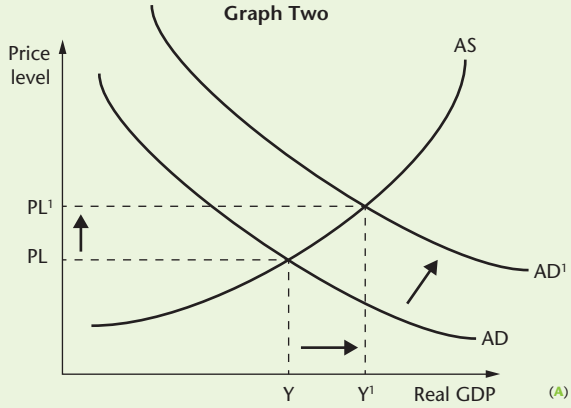
a.



(A)

Lower personal tax rates would give households higher disposable income. This would cause an increase in household consumption spending (C), increasing aggregate demand (AD) and shifting the AD curve to the right from AD to AD^1. The increase in AD would increase the price level from PL to PL^1, causing inflation. (M)

b.



(A)

Lower interest rates will cause household consumption (C) to increase as it will cost less for households to borrow and the incentive to save is reduced. Lower interest rates also cause business investment (I) to increase as costs of borrowing are lower so more business projects will become profitable. C and I are both components of aggregate demand (AD) so increases in C and I will cause AD to increase, shifting the AD curve right from AD to AD^1. (M)

Lower personal tax rates are likely to have a smaller impact on inflation than lower interest rates because lower personal tax rates increase C, while lower interest rates increase both C and I.

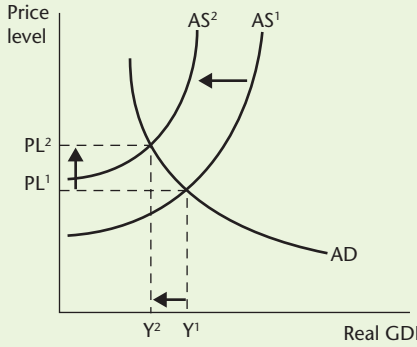
The increase in AD on Graph Two is therefore much greater than the increase in AD shown on Graph One. As a consequence, the impact on the price level on Graph Two is also much greater than the impact shown on Graph One. (E)

Question Two

p.13

a. Inflation means an increase in the general level of prices. (A)

b. **Graph One: AS/AD Model of the New Zealand Economy**



(A)

c. Higher insurance costs would affect almost all New Zealand businesses which could cause a decrease in aggregate supply (AS), shifting the curve from AS^1 to AS^2. This could cause an increase in inflation by increasing the price level from PL^1 to PL^2. This occurs because firms increase their prices to cover their higher costs of production. (M)

d. An increase in beef export earnings could affect inflation by increasing Net Exports (X – M). This is a component of aggregate demand (AD), so AD could increase from AD^1 to AD^2, as shown on Graph Two below. An increase in AD could cause the price level to rise from PL^1 to PL^3.

An increase in insurance costs for New Zealand businesses may have a greater effect on inflation than an increase in beef export earnings because higher insurance costs will affect almost all New Zealand businesses, while there are relatively few businesses that export beef. So any decrease in AS as a result of higher insurance costs is likely to be greater than any increase in AD as a result of higher beef export earnings.