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NZQA

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MANA TOHU MĀTAURANGA O AOTEAROA

QUALIFY FOR THE FUTURE WORLD
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Level 3 Economics, 2015

91399 Demonstrate understanding of the efficiency of market equilibrium

2.00 p.m. Wednesday 18 November 2015
Credits: Four

Achievement	Achievement with Merit	Achievement with Excellence
Demonstrate understanding of the efficiency of market equilibrium.	Demonstrate in-depth understanding of the efficiency of market equilibrium.	Demonstrate comprehensive understanding of the efficiency of market equilibrium.

Check that the National Student Number (NSN) on your admission slip is the same as the number at the top of this page.

You should attempt ALL the questions in this booklet.

If you need more room for any answer, use the extra space provided at the back of this booklet.

Check that this booklet has pages 2–11 in the correct order and that none of these pages is blank.

YOU MUST HAND THIS BOOKLET TO THE SUPERVISOR AT THE END OF THE EXAMINATION.

Merit

TOTAL 17

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Merit = 17

QUESTION ONE: IMPACT OF A SUBSIDY

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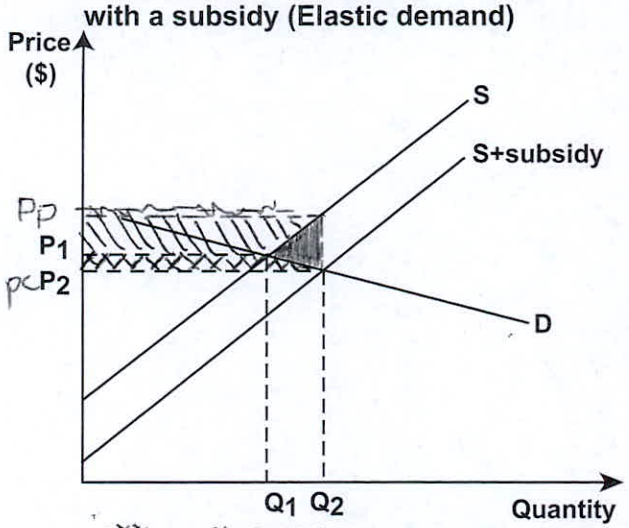
"Increasing congestion on urban roads presents a serious threat to the economic growth and liveability of our city regions."

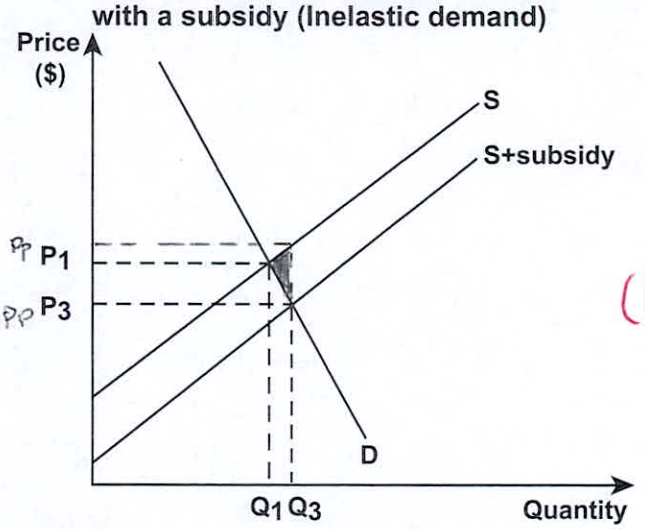
Source: http://www.transportworks.org/about-transport-works/reducing-congestion

One possible policy to reduce traffic congestion is to increase subsidies on public transport. The effectiveness of this policy is determined by the price elasticity of demand for public transport.

Graph One: Market for public transport with a subsidy (Elastic demand)



Graph Two: Market for public transport with a subsidy (Inelastic demand)



(1)

XXX = change in consumer surplus
||| = change in producer surplus

■ - dead weight loss

(a) (i) On Graph One, clearly shade and label the following:

- the change in consumer surplus as a result of the subsidy
- the change in producer surplus as a result of the subsidy.

(ii) Explain in detail the change in consumer surplus and the change in producer surplus. In your answer, refer to Graph One.

(2)

When the subsidy is placed on public transport, causing the supply curve to shift right from S to S+subsidy, it causes the price to decrease from P1 to P2; and quantity to increase from Q1 to Q2. Due to the decrease in price the consumer surplus is expanded by the amount shown by XXX on the graph. Also due to the decrease in price and increase in quantity, producer surplus is decreased by the area of ||| on graph one.//

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(b) Compare and contrast the impact of subsidies on public transport when demand is elastic with when demand is inelastic.
In your answer:

- on BOTH graphs show the loss of allocative efficiency (deadweight loss) as a result of the subsidy
- explain in detail, for Graph One, why there is a loss of allocative efficiency
- explain in detail whether subsidies on public transport will be more effective in reducing traffic congestion if demand is elastic or inelastic
- refer to Graph One and Graph Two.

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When a subsidy is introduced ~~to~~ for public transport with elastic demand (graph 1) there is a loss of allocative effeciency (shown by the shaded area ~~#~~ on graph 1). This is because demand is elastic meaning that when there is a decrease in price, quantity will increase significantly as the amound demanded is very dependent on the price. There is a loss of allocative effeciency as there is a dead weight loss present and consumer and producer surpluses are no longer maximised. This is a decrease in net social welfare as an amount of the subsidy has been lost to the market. (3)

The subsidy on public transport is more effective in reducing traffic congestion when demand is elastic rather than inelastic. This is because when demand is inelastic and the price decreases, little change will occur to the quantity as the ~~demand~~ consumers ~~that~~ dont want to take public transport, no matter what the price is. However a subsidy is effective on consumers with elastic demand as if the the price is decreased only a little, a larger increase in quantity will occur as their demand for public transport is very dependent on price// (4)

M6

QUESTION TWO: GOVERNMENT INTERVENTION AND EFFICIENCY OF THE MARKET

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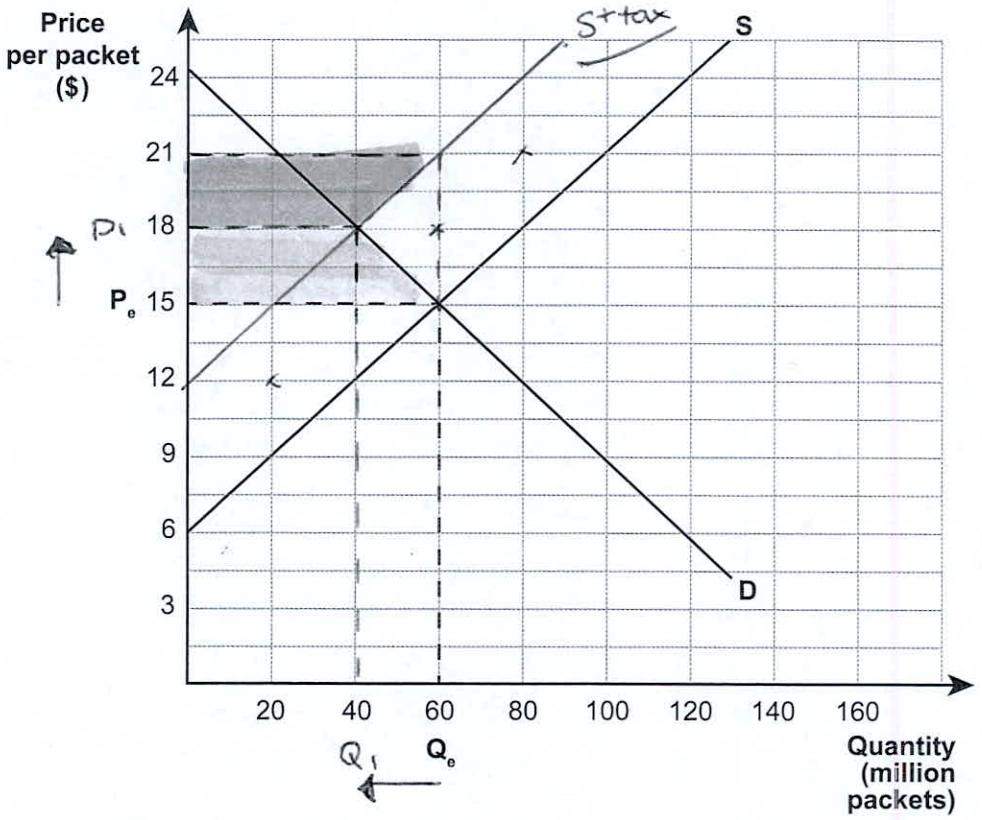
Smokers thinking about making a new year resolution to quit smoking have been given some extra motivation with a tax increase that will significantly increase the average price of a pack of cigarettes.

Source (adapted): http://www.stuff.co.nz/national/politics/9569478/Cigarette-taxes-jump-10-per-cent

Graph Three: New Zealand market for a packet of cigarettes



(a) (i) On Graph Three, show an indirect tax which results in a price of $18 for a packet of cigarettes.

(ii) Complete Table One by calculating the relevant values from Graph Three.

Table One

	Value from Graph Three ($)
Change in consumer surplus	$120 M + 30 M = $150 million
Change in producer surplus	120 + 30 = $150 million
Tax revenue for the Government	= $60 million ($360 million)

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Another policy which would increase the price of cigarettes to $18 is imposing a minimum price of $18.

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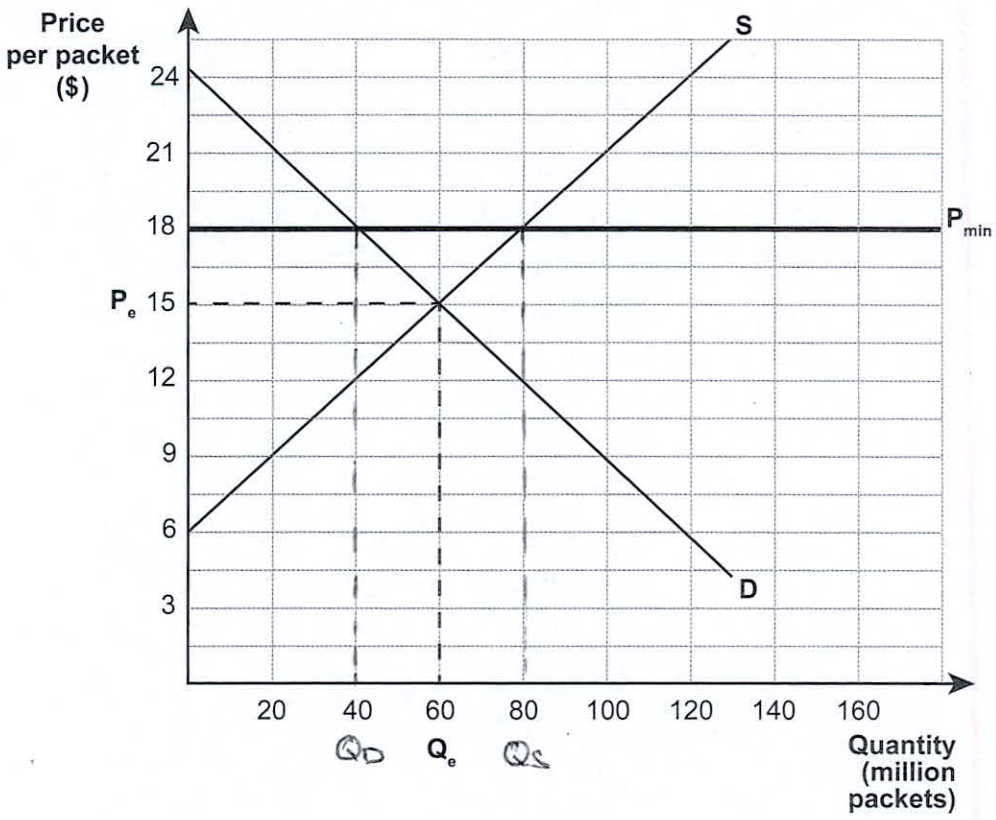
Graph Four: New Zealand market for a packet of cigarettes with a minimum price of $18



(b) Complete Table Two by calculating the relevant values from Graph Four.

Table Two

	Value from Graph Four ($)
Change in consumer surplus	120 + 30 = $150 million
Change in producer surplus	$120 million
Change in consumer spending	900 - 720 = $180 million

(c) Compare and contrast the two policies – an indirect tax and a minimum price.
In your answer:

- explain in detail the impact on consumer surplus of each of the two policies
- explain in detail the impact on producer surplus of each of the two policies
- explain in detail the impact on the Government of each of the two policies
- use relevant calculations from Table One and Table Two and refer to Graph Three and Graph Four.

When an indirect tax is placed on cigarettes to raise the price from $15 to $18 per packet, consumer surplus is decreased by (5)

$150 million. This is due to the increase in price from Pe to P, and decrease in quantity from Qe to Q1 on graph 3. The producer surplus is also decreased by $150 million. The government is better off as they recieve a higher income by $360 million due to the tax.

However when a minimum price is set at $18, consumer surplus is decreased by $150 million and producer surplus is decreased by a lesser amount of $120 million. The setting of a minimum price has no negative impact on the government as they are not gaining revenue like they did with a tax, but they are not loosing revenue as even though less cigarretts are being sold to consumers ($180 million), quantity supplied has increased due to the higher price recieved, which could be exported. If they were exported the government would gain revenue from the exports.

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M5

QUESTION THREE: GOVERNMENT INTERVENTION IN THE HOUSING MARKET

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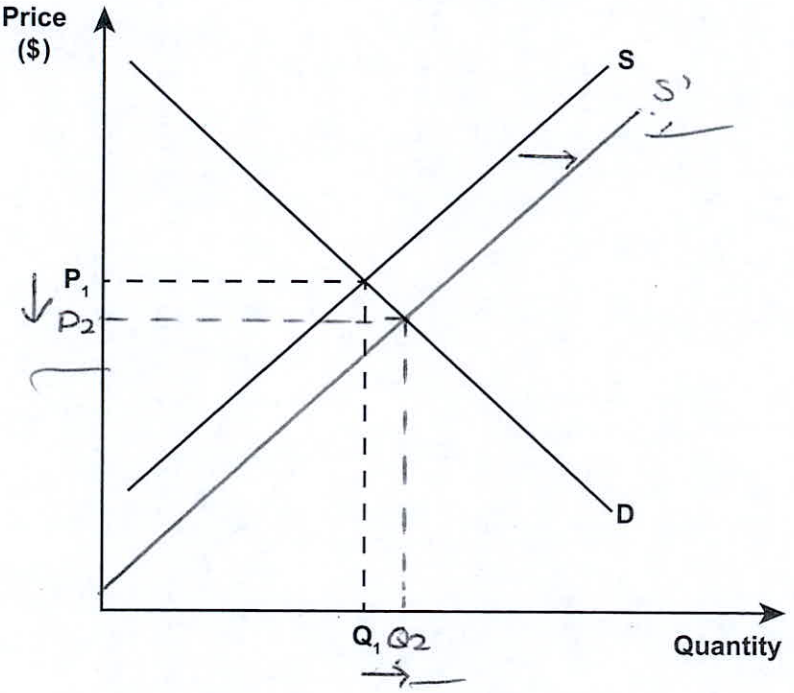
> Tariffs on most building materials will be suspended in a move the Government says will bring the average cost of building a house down by about $3 500.
>
> Source (adapted): http://www.stuff.co.nz/business/budget-2014/10048621/Building-material-import-tax-held

Graph Five: The New Zealand housing market



(a) (i) On Graph Five, show the impact on the New Zealand housing market if there is a reduction in the cost of building houses. Clearly label the new equilibrium price (P_2) and quantity (Q_2).

(6)

(ii) Explain in detail, using market forces, the change in the market equilibrium. In your answer, refer to Graph Five.

When supply increases due to costs decreasing, ~~the~~ there is a surplus at P1. Firms will lower their price to clear stock. When the price decreases, quantity demanded increases as it becomes relatively more affordable (law of demand). When the price decreases, quantity supplied decreases as it becomes relatively less profitable to supply (law of supply). This continues until equilibrium is restored, demand = supply at the new price P2 and quantity Q2 //

(7)

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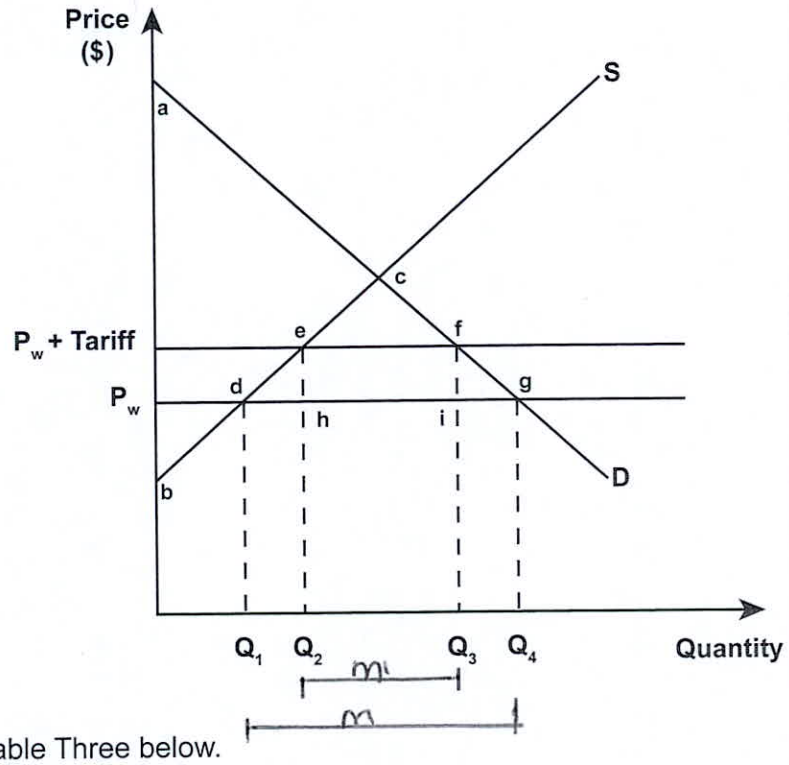
However, Finance Minister Bill English said the cuts to tariffs on building materials were only temporary and would need to be reintroduced due to the technicalities in the legislation.

Source (adapted): http://www.stuff.co.nz/business/budget-2014/10048621/Building-material-import-tax-held

Graph Six: New Zealand market for building materials with a tariff



(b) Complete Table Three below.

Table Three

	Labels from Graph Six
Change in consumer surplus	Pw + Tariff, Pw, f, g
Change in producer surplus	Pw + Tariff, e, b
Tariff revenue for the Government	e, f, h, i
Deadweight loss	a e n ~~and~~ & + g i

(c) Compare and contrast the impact of the tariff on consumers and producers of building materials, the Government, and allocative efficiency.
In your answer:

- explain in detail the impact on consumer surplus and producer surplus
- explain in detail the impact on the Government – gains revenue
- explain in detail the impact on allocative efficiency – not
- refer to Graph Six and Table Three.

When a tariff is introduced on building materials it forces the price to rise from Pw to Pw + tariff

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It also causes imports to decrease from m to m'. Consumers are now paying a higher price of Pw + tariff and their quantity demanded has decreased from Q4 to Q3. This causes the consumer surplus to decrease by the area Pw+tariff, Pw, f, g. ✓

Producers are now recieving a righer price of Pw + tariff ~~on~~ which is more profitable so their quantity supplied increases from Q1 to Q2. This causes the ~~producer~~ surplus to increase by the area Pw + tarriff, e, b. ✓ (8)

The government recieve a tax from imported materials and therefore gain revenue. This is shown by the area e f g i. ✓ (10)

The introduction of the tariff on imported building materials is not allocatively effecient. This is because dead weight losses are now present (shown by the areas d, e, h and f, g, i). Consumer and producer surpluses are now not maximised, which also shows a loss of effeciency. Society is worst off with the introduction of tariffs as their is a loss in net social welfare. ✓ (9)

M6

Merit exemplar for 91399 2015		Total score	17
Q	**Grade score**	**Annotation**	
1	M6	This response is awarded M6 because the candidate provided: (1) correct shadings and labels (key provided) (2) detailed explanations about the change in CS (error in PS) including reasons for the change, with reference to the Graph One (3) detailed explanation of the loss of AE with reference to Graph One (4) detailed explanation of the effectiveness of the subsidy on elastic vs inelastic demand, but a better answer would have included reference to Graphs One and Two (i.e. Q_1Q_2 being a greater increase than Q_1Q_3, greater than proportional increase in QD) and linked the greater increase in QD to fewer cars on the road which equals less traffic congestion.	
2	M5	This response clearly provides evidence of an in-depth understanding of the material. It includes: (5) 4 out of 6 correct calculations and detailed explanations about the changes in CS for both policies including reasons for the changes, with correct reference to Graphs Three and Four and the correct figures from Tables One and Two This response is not M6 due to the errors in the figures relating to changes in PS and government revenue and a lack of relevant details to do with reasons why PS changed and flow-on effects on government.	
3	M6	This response is awarded M6 because the candidate provided : (6) correct shift of supply curve and labels (7) detailed explanations about restoring equilibrium using market forces, with reference to Graph Five (8) detailed explanation of the decrease in CS with correct reference to Table Three and Graph Six. (error in PS reference and label) (9) loss of AE with correct reference to Table Three and Graph Six. A better answer would have included the government as well when explaining the net welfare loss (i.e loss of CS outweighs the combined gain of PS and govt tariff revenue) and the correct labelling and reference to the change in PS (8), and a flow-on effect from the tariff revenue received by the government (10).	