Contents

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Chapter 1

Lecture Notes

1.1 Thinking Like an Economist

1.1.1 What is Economics?

> **Life** is about making choices.
> Economics is the **science of** choice.
> That means economics is the **science of life.**

by Mr. Alan Duhs (Senior Lecturer, UQ School of Economics

What is Microeconomics?

- How to use what you have (your resources) to get as much as possible of what you want
- It's mostly about how individuals make the most efficient (effective) choices
- The systematic effects these choices have on other individuals

Note 1: Scarcity Principle

Our resources are limited, so getting more of one thing means getting less of another.

- Wants exceeds available resources
- Choices between alternatives needed

Something is **scarce** if you:

- have to sacrifice something else to get it (e.g. money, time, effort)
- need to pay a price for it (i.e. not free)

Consumers will be forced to decide what to consume

Producers will be forced to decide what to produce

Governments will be forced to decide how to allocate resources to achieve specified objectives

1.1.2 Opportunity Cost

All about what was **not** chosen. Economic concept to help make a rational choice. What was sacrificed. What is given up once a decision has been made.

1.1.3 Cost Benefit Principle

Chose to do something only if the **extra benefit** (incremental benefit) from doing it is greater than (or equal to) the **extra cost** (incremental cost), assuming the individual is **rational**.

1.1.4 Economic Surplus

Incremental benefits of an action minus the incremental explicit and implicit costs of that action

Explicit cost a cost that involves spending money (i.e. a transaction physically occurs)

Implicit cost a non-monetary **"opportunity cost"** (no transaction occurs but an alternative is not chosen)

Econmic decision strive to maximize economic surplus by:

1. **maximizing** the benefits
2. **minimizing** the costs

Economic surplus can be maximized by making choices that **minimize the opportunity cost**. **Opportunity cost** is economics is about assessing if an **efficient choice** of resources has been made.

1.1.5 Rules for Making Rational Economic Choices

In economics, a rational choice should:

1. **include** opportunity cost
2. **exclude** sunk cost
3. measure cost in **absolute dollar amount**, not percentages
4. be based on **Marginal Analysis**

Note 2: Sunk Cost

- expenses that have occurred in the past before a decision has been taken
- costs that would have had to occur in order for a choice to be made
- costs that are typically not able to be directly recovered
  1. exploration costs (oil well, mining)
  2. market research costs (focus groups, surveys)
  3. feasibility study costs (before a decision is made)

1.1.6 Marginal Benefit

The change in total benefit from doing **one extra unit of** an activity

$$= \frac{\text{change in total benefit}}{\text{one extra unit sold}}$$

1.1.7 Marginal Cost

The change in total cost from doing **one extra unit of** an activity

$$= \frac{\text{change in total cost}}{\text{one extra unit produced}}$$

Note 3: Economic Efficiency

1.1.8 Absolute and Comparative Advantage

Absolute Advantage

- ability of an individual, firm, or country **to produce more** of a product or service than competitors using the **same amount** of resources.
- alternatively, produce the **same** amount of product or services as competitors with *less resources*.

Comparative Advantage

- ability of an individual, firm, or country to produce a product or service at a *lower opportunity cost* than other competitors (relates to who is more efficient at producing something).

Opportunity cost is about assessing if an **efficient choice** of resources has been made. Outcomes are efficient if opportunity cost is minimised. **Comparative advantage** exists with the producer (or service provider) producing the product at the **lowest opportunity cost**. Contrast **absolute advantage** which is *irrelevant* in deciding who is more efficient at producing something.

1.1.9 Gains and Specialization

Note 4: Principle of Comparative Advantage

- Everyone does best (individuals or countries) when they concentrate on activities for which their opportunity cost is lowest.
- By exchanging goods with others, individuals can more efficiently obtained their preferred mix of goods and services.

1.1.10 Production Possibility Curve (PPC)

- The production possibilities curve (PPC) = a graphical representation describing the maximum amount of one good that can be produced for every possible level of production of another good.
- **Assumptions:**
  1. only two goods are able to be produced (for simplification), bananas and blueberries
  2. consider the PPC for a single worker only

Attainable Point: Any combination of goods that can be produced using currently available resources. All points on the PPC, as well as below and to the left of the PPC, are attainable.

Unattainable Point: Any combination of goods that cannot be produced using currently available resources. All points lying above and to the right of the PPC are unattainable.

Efficient Point: Any combination of goods for which currently available resources **do not** allow an increase in the production of one good unless there is a reduction in the production of the other.

Inefficient Point: Any combination of goods for which currently available resources **enable** an

increase in the production of one good **without** a reduction in the production of the other.

1.2 Demand and Supply

1.2.1 Demand

Demand: Not stuff, stuff at a price

1.2.2 Market System

Individual preferences and purchasing power + costs of production → generate prices → act as signals that coordinate decision making → guide resource allocation in the economy
Decentralized market economies often outperform centrally planned economies in terms of efficiently allocating resources → But, not always → sometimes they fail

Note 5: Demand Definition

Demand is a mathematical relationship between cost and quantity demand (stuff)

- **Demand** is a **relationship** between prices and the quantities demanded at those prices, sometimes referred to as a "willingness to pay curve"
- **Demand** is a downward sloping relationship
- As price increases, the **quantity demanded** by consumers decreases
- The area under the demand curve is the amount of money a consumer spends
- The **"Ceteris paribus"** assumption in Latin meaning "all else being equal"
  - needed to develop the demand model
  - when analyzing two variables (such as price and quantity), it is assumed **all other variables are held constant** (not able to be changed).

1.2.3 Supply

As the price a product (or service) **increases**, and assuming *ceteris parabis*, producers will supply **more**. **Note:** there is an upward sloping (positive) relationship between price and quantity supplied. A change in price results in a movement **along** the supply curve.

Note 6: Supply Definition

Supply in economics is represented as a relationship between **price** and **quantity supplied**.

Market Supply

All individual producers' quantities supplied add to create a market supply for a product (or service).

1.2.4 Interaction of Supply and Demand

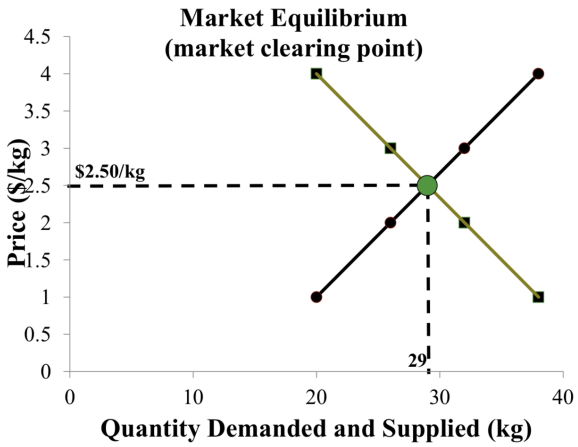


Figure 1.1: Market Equilibrium

- The intersection of the supply and demand curves so → quantity supplied = quantity demanded AND selling price = purchase price
- A point where suppliers are happy to sell a given quantity at a certain price, and this exactly matches the price consumers are willing to pay for this quantity supplied

1.2.5 Market Clearing Point

Competitive Market

- has many buyers and many sellers
- Prices and quantities continue to adjust until a market clearning point is reached, eliminating shortages and surpluses
- note the market clearing point and the **model suggests** equilibrium is a **static point**. In reality, it can continually move. i.e. the point is **dynamic**

Price Floor: Price can be set higher than market clearing

Price Ceiling: Price can be set lower than market clearing

Price Floor

- used by governments to set a legally determined price to protect suppliers
- the price is set **above** the market clearing price, and becomes a minimum price for suppliers
- this minimum price is then guaranteed by the government

Price Ceiling

- used by governments to set a legally determined price to protect consumers (e.g. tenants who rent, petrol "price caps" when oil prices rising fast)
- the price is set **below** the market clearning price, to help protect consumers from higher prices
- the legal price is a maximum that can be charged by suppliers
- What about **illegally** paying higher prices for the quantity that **is** available? **Black Markets**?

Market Failure: an inefficient allocation of goods and services in a market

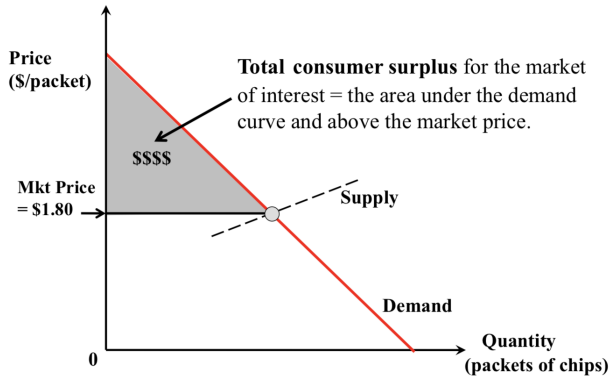


Figure 1.2: Total Consumer Surplus

Note 7: Consumer Surplus

The maximum price an individual consumer is prepared to pay less the clearing price set by the market = an individual's consumer surplus.
See Figure 1.2

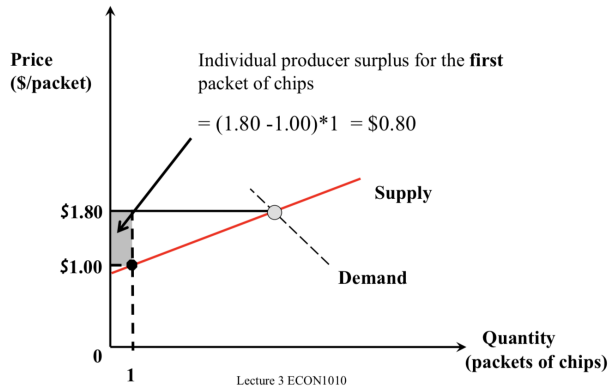


Figure 1.3: Individual Producer Surplus

Note 8: Producer Surplus

The market clearing price less the minimum price a supplier would have been willing to accept in a sale
See Figure 1.3

Note 9: Economic Surplus

Total Economic Surplus = total consumer surplus + total producer surplus (maximised in competitive markets)

Dead Weight Loss

Economic inefficiency from government intervention. It's the area between the lines that is loss by introducing a Price Floor

Note 10: Increase in Demand

Increase in demand → **Right shift** in demand → **Positive movement** in demand
Figure 2.1 shows the curve shifting.

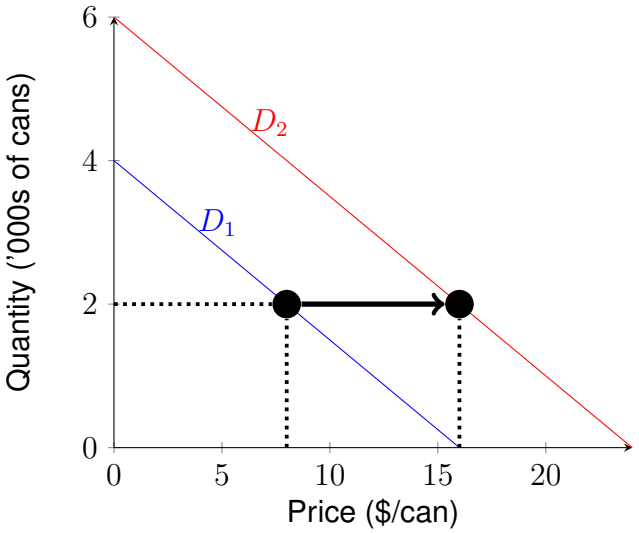


Figure 1.4: Right Shift in demand

Note 11: Decrease in Demand

Decrease in demand → **Left shift** in demand → **Negative movement** in demand
Figure 1.4 shows the curve shifting.

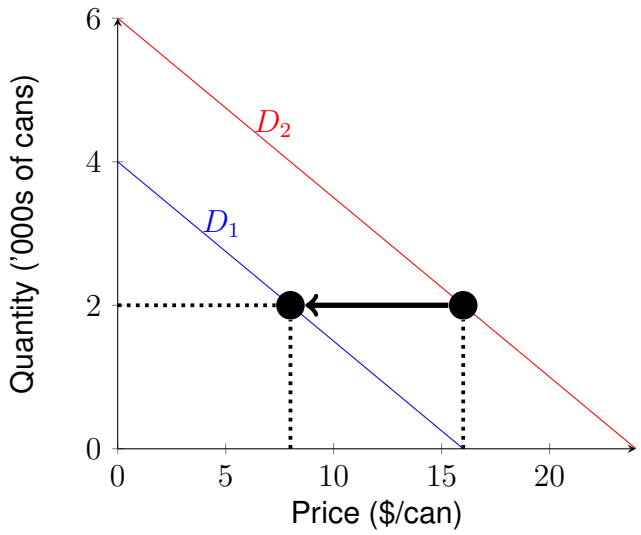


Figure 1.5: Left Shift in demand

1.3 Factor Causing a Shift in Demand

- Change in consumer taste (or preference)
- Change in population
- Change in expectations of future price rises
- Change price of a substitute
- Change price of a complement
- Change in income (and the product is normal)
- Change in income (and the product is inferior)

Requires the assumption that **price remains fixed** and some other factor changes so as to affect the quantity demanded by the consumer

Note 12: Substitutes

A product or service that **can be used in place of** other products or services. i.e. used as replacements.

Note 13: Complements

Products or services that **are consumed together**.

Note 14: Normal Goods

As **income increases**, consumer demand **increases** for the product or service. As **income decreases**, consumer demand **decreases** for the product or service

Note 15: Inferior Goods

As **income decreases**, consumer demand **increases** for the product or service. As **income increases**, consumer demand **decreases** for the product or service

1.4 Factor Causing a Shift in Supply

- Change in number of suppliers in the market
- Change in expectations of future selling price
- Change in level of input costs
- Change production to a new, substitute product
- Changes in technology
- Changes in government taxes on a product

Again, a shift assumes **price remains fixed** and some other factor changes to affect the quantity supplied by the producer

1.4.1 A Shift in Supply

$$\begin{aligned}\text{Profit} &= \text{revenue} - \text{expenses} \\ &= \frac{\text{price}}{\text{unit}} \times \text{quantity} - \text{expenses}\end{aligned}$$

Chapter 2

EMC Tutes

2.1 Supply and Demand

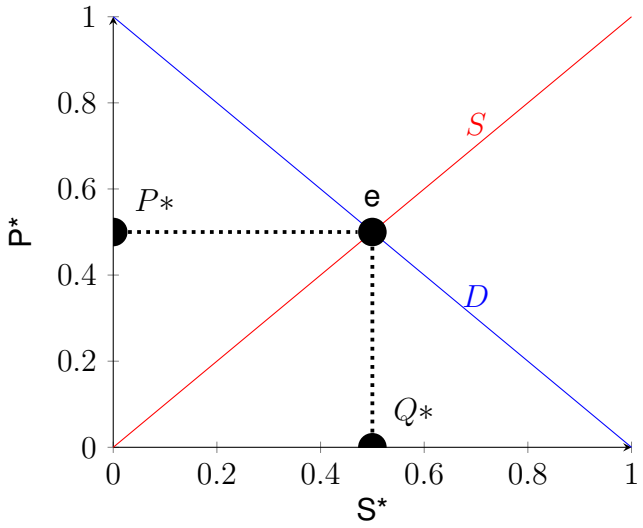


Figure 2.1: Left Shift in demand

2.2 Perfect Competition

- Free entry and exist
- Homogeneous Product
- Mark clear at equilibrium
- Perfect information
- Large number of buyers and sellers
- Firms of price taker

2.3 Market Equilibrium

A Demand Curve is downward sloping because people are more likely to be excited about buying something when it is cheap.

Chapter 3

CML Quizzes

3.1 Quiz 1

3.1.1 Question 1

Rosie is considering starting a clothing stall at a weekend market in her suburb. Which of the following statements is true? (Single Answer)

1. Rosie can use economic thinking to determine the selling price of her cloths
2. Rosie should only use economics in this situation and not accounting
3. Clothing is not a scarce resource
4. Rosie cannot use economics because her business is too small
5. Rosie does not have to make trade-offs in this situation

3.1.2 Question 2

Andy is a baker in Brisbane. It costs him $0.50 to produce each loaf of bread. Andy can sell 10 loaves of bread for $40 and 11 loaves of bread for $43. Which of the following statements are true: (Multiple Answers)

1. The marginal cost of producing a loaf of bread is $0.50
2. Andy should produce the eleventh loaf of bread because marginal benefit is greater than the average cost
3. There is insufficient information to determine the marginal benefit of producing the eleventh loaf of bread
4. The marginal benefit of producing the eleventh loaf of bread is $3

Working:

Number of Loaves	Money Gained	Total Benefit
10	$40	$35
11	$43	$37.5

Average cost: $0.50
Marginal Benefit of 11th bread: $3

3.1.3 Question 3

Jeremy is considering whether to go to the beach on the weekend. His alternatives, in order of preference from most to least preferred, are:

1. Visiting his family
2. Studying for a test
3. Working at his casual job for 5 hours with a wage of $15/hour

Select the item from the list provided to make the following statements true:

Average Cost; The net benefit of working at his casual job; should not; visiting his family; 5 hours; working at his casual job; should; studying for a test; the net benefit of studying for a test; marginal benefit; marginal cost; $15/hour.

In considering whether to go to the beach, the value of casual work foregone _____ be included in a marginal analysis. The opportunity cost of going to the beach is _____. If going to the beach suddenly is **not** an option for Jeremy, then _____ is the opportunity cost of visiting his family.

Answer: Should not; visiting his family; studying for a test

3.1.4 Question 4

Lillian bought a limited edition "Harry Potter" costume at an exclusive fan event. She can now either:

1. Sell the costume on eBay for $534
2. Keep the costume for per personal use

If she sells the costume on eBay she will have to pay $10 to ship it to the customer. If she keeps the costume she expects to gain $651 of enjoyment and will need to spend $88 on maintenance and cleaning. When comparing the net benefits of selling the costume minus the net benefits of keeping it, what is the economic surplus/loss? Answer to the nearest whole number.

Answer: Let x be the benefit of selling. Let y be the benefit of keeping. Let t be the economic surplus/loss of selling minus keeping

$$\begin{aligned} x &= \$534 - \$10 \\ &= \$524 \\ y &= \$651 - \$88 \\ &= \$563 \\ t &= x - y \\ &= \$524 - \$563 \\ &= -\$39 \end{aligned}$$

3.1.5 Question 5

Lucy pays $40 to enter a theme park. When inside the park, Lucy considers how many rides she should have on the "Big Drop". She expects to gain an incremental benefit of $25 of enjoyment from the first ride, then gain subsequent incremental benefits of $20 from the second, $15 from the third, $10 from the fourth and $5 from the fifth. The cost of each ride is $15.

In determining how many rides to have, the entry free is a/an _____ cost. Using marginal analysis, Lucy should have how many rides? _____. The maximum surplus for Lucy, from doing the number of rides you found in part b, is $_____. Answer to nearest whole number.

Ride No	Benefit	Benefit - Cost
1	$25	$10
2	$20	$5
3	$15	$0
4	$10	-$5
5	$5	-$10

Answer: Sunk Cost; 2 rides; $15

3.1.6 Question 6

Seth and Ryan are roommates, living together in a house. Both roommates are currently considering who should cook dinner and who should clean up afterwards. Ryan was a trainee chef and a skilled cook. Seth, on the other hand, had previously only lived at home, where his mum cooked everything for him. However, Seth had become very efficient at cleaning up after meals and packing things away. Which of the following is true: (Multiple Answers)

1. Seth has a comparative advantage in cooking dinner
2. Thinking like an economist in this situation, the roommates should specialise with Ryan cooking and Seth cleaning
3. Ryan has a lower opportunity cost for cooking dinner

3.1.7 Question 7

Lily and May operate a store that sells fresh juices. There are two main activities: cutting the fruit and juicing the fruit. Lily and May are deciding who should cut and who should juice in order to maximize output.

	Cutting (kg/hr)	Juicing (kg/hr)
Lily	3	5
May	2	8

Which of the following statements are true: (Multiple Answers)

1. For Lily, the opportunity cost of 1kg of cutting is 1.2kg of juicing
2. For May, the opportunity cost of 1kg of juicing is 0.25kg of cutting
3. May should specialize in cutting
4. Lily has an absolute advantage in juicing

	Cutting (kg/hr)	Juicing (kg/hr)
Lily	$\frac{3}{3} = 1$	$\frac{5}{3} = 1.67$
May	$\frac{2}{2} = 1$	$\frac{8}{2} = 4$

	Cutting (kg/hr)	Juicing (kg/hr)
Lily	$\frac{3}{5} = 0.6$	$\frac{5}{5} = 1$
May	$\frac{2}{8} = 0.25$	$\frac{8}{8} = 1$

3.1.8 Question 8

Australia's second biggest tading partner is Japan. Among other things, Australia exports coal to Japan while importing cars. In one trading day, Japan can produce 12 cars per hour and Australia can produce a total of 80 tonnes of coal per hour. Assume cars and coal are the only two things that the two countries trade. Also assume one trading day is 9 hours long.
Select the item from the list provided to make the following statements true.

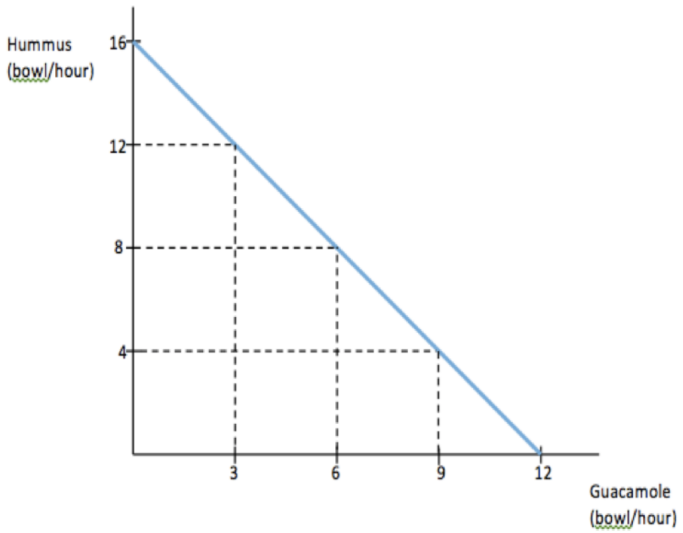
Cars per hour; 81; Opportunity cost; 720 tonnes of coal; Comparative advantage; 96; Minimized; 108; Cars; Absolute advantage; Tonnes of coal; Maximized

By specializing, the two countries have minimized _____. In one trading day, Australia will produce _____. In one trading day, Japan will produce _____ cars.

Answer: Opportunity Cost; 720 tonnes of coal; 108;

3.1.9 Question 9

Lise is hosting a party in 6 hours' time. She wishes to provide guests with her homemade dips – guacamole and hummus. Shown below is Lisa's production possibilities curve for the next 6 hours.



What is Lisa's opportunity cost of producing 1 bowl of guacamole? Answer to the nearest two decimal places. In bowls of hummus.

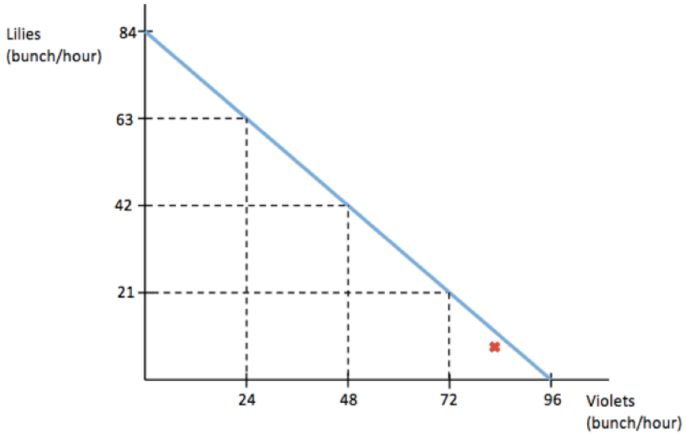
Answer:

$$
\begin{aligned}
y &= mx + c \\
16 &= 0m + c && \text{(Sub when } x \text{ is zero)} \\
c &= 16 \\
\therefore y &= mx + 16 \\
0 &= 12m + 16 && \text{(Sub when } y \text{ is zero)} \\
-16 &= 12m \\
m &= \frac{-16}{12} = \frac{-8}{6} = \frac{-4}{3} \\
\therefore y &= 16 - \frac{4}{3}x \\
y &= 16 - \frac{4}{3} \times 1 && \text{(Produce 1 bowl of guacamole)} \\
y &= 14.67
\end{aligned}
$$

Therefore the opportunity cost of producing 1 bowl of guacamole is $16 - 14.67 = 1.33$ bowls of hummus.

3.1.10 Question 10

Martha is a florist who is trying to maximize her output. She can produce two types of flowers: lilies and violets. Shown below is Martha's production possibilities curve. The X denotes the quantity of each flower she is currently producing.



Answer the following questions:

- Is the current output attainable? (Yes/No)
- Calculate the opportunity cost of producing 1 bunch of lilies. Answer to the nearest two decimal places. _____ bunches of violets
- Is the current output efficient, inefficient or neither because it is unattainable?

$$
\begin{aligned}
y &= 84 - \frac{21}{24}x \\
1 &= 84 - \frac{21}{24}x \qquad \text{(Producing 1 bunch of lillies)} \\
\frac{21}{24}x &= 83 \\
x &= \frac{83 \times 24}{21} \\
x &= 94.86
\end{aligned}
$$

Therefore the opportunity cost of producing 1 bunch of lilies is $96 - 94.86 = 1.14$

3.2 Quiz 1 Second Attempt

3.2.1 Question 1

Rosie is considering starting a clothing stall at a weekend market in her suburb. Which of the following statements is true? (Single)

- Rosie can use economic thinking to determine the selling price of her clothes
- Rosie should only use economics in this situation and not accounting
- Clothing is not a scarce resource
- Rosie cannot use economics because her business is too small
- Rosie does not have to make trade-offs in this situation

3.2.2 Question 2

John enjoys boxing and engages a personal trainer to improve his health and fitness. As part of a special offer, John pays $0 for the first session and $30 for each subsequent session. John gains $200 of benefit from attending 6 sessions and $250 of benefit from attending 7 sessions. (Multiple)

- John should attend the seventh session because the marginal benefit is greater than the marginal cost
- The marginal benefit of attending the seventh session is $40 per session
- John should not attend the seventh session because the marginal benefit is less than the marginal cost

- The marginal cost of attending the seventh is $50 per session

3.2.3 Question 3

Jeremy is considering whether to go to the beach on the weekend. His alternatives, in order of preference from most to least preferred, are:

1. Visiting his family
2. Studying for a test
3. Working at his casual job for 5 hours with a wage of %15/hour

Select the item from the list provided to make the following statements true.

- average cost
- the net benefit of working at his casual job
- should not
- visiting his family
- 5 hours
- working at his casual job
- should
- studying for a test
- the net benefit of studying for a test
- marginal benefit
- marginal cost
- $15/hour

In considering whether to go to the beach, the value of casual work foregone _____ be included in a marginal analysis.
The opportunity cost of going to the beach is _____.
If going to the beach suddenly is **not** an option for Jeremy, then _____ is the opportunity cost of visiting his family.

Answer: should not; visiting his family; studying for a test

3.2.4 Question 4

Matt is a semi-professional scooter rider and is considering buying a new standard wheel for his scooter. Matt can buy a wheel from the local skate shop on his street for $30. However, at the skate super store on the other side of town there is a sale of 22% off for the same wheel . The round trip to the skate super store is 3 hours and therefore Matt must give up 3 hours of sleeping, which he values at a total of $45. In considering whether Matt should travel to the skate super store to buy the wheel, what is the economic surplus/loss to the nearest whole dollar? Answer to the nearest whole number (with no decimal places or $ sign. If a loss, include a minus sign).

$$\begin{aligned}
\text{Discount Cost} &= 30 - 30 \times 0.22 \\
&= 23.4 \\
\text{Total SuperStore Cost} &= 45 + 23.4 \\
&= 68.4 \\
\text{Total Loss} &= 68.4 - 30 \\
&= 38.4 \\
&= 38 \qquad \text{(Rounded)}
\end{aligned}$$

3.2.5 Question 5

Eloise pays $20 for a daily pass to the ice skating centre. When inside the centre, Eloise considers how many hours of training she should complete. She expects to gain an incremental benefit of $57 from the first hour, then gain subsequent incremental benefits of $40 from the second, $30 from the third, $15 from the fourth and $5 from the fifth. The cost to Eloise, due to the risk of injury and fatigue, is $4 for the first hour, $8 for the second hour, $12 for the third hour, $16 for the fourth hour and $20 for the fifth hour.

In determining how many hours to train for, should the price of the daily pass be included? (Yes/No)

Using marginal analysis, Eloise should train for many hours? 3
The maximum surplus for Eloise, from training the number of hours you found in part b, is....

$$(57 + 40 + 30) - (4 + 8 + 12) = 103$$

3.2.6 Question 6

Drake and Josh work at their local movie theatre. Josh is more efficient at bagging the popcorn, while Drake is more efficient at selling the tickets.
Which of the following statements is true? (Single)

- Drake has a lower opportunity cost in selling the tickets
- Josh has a lower opportunity cost in selling the tickets
- Josh's absolute advantage is bagging popcorn is relevant in this case when a theatre manager decides who should sell tickets and who bags popcorn
- Drake and Josh should not specialise and do both activities themselves for an efficient outcome
- The most efficient outcome is where opportunity cost is maximized

3.2.7 Question 7

Lily and May operate a store that sells fresh juices. There are two main activities: cutting the fruit and juicing the fruit. Lily and May are deciding who should cut and who should juice in order to maximise output.

	Cutting (kg/hr)	Juicing (kg/hr)
Lily	3	5
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Which of the following statements are true: (Multiple)

- For Lily, the opportunity cost of 1kg of cutting is 1.2kg of juicing
- For May, the opportunity cost of 1kg of juicing is 0.25kg of cutting
- May should specialize in cutting
- Lily has an absolute advantage in juicing

3.2.8 Question 8

Australia's second biggest trading partner is Japan. Among other things, Australia exports coal to Japan while importing cars. In one trading day, Japan can produce 12 cars per hour and Australia can produce a total of 80 tonnes of coal per hour. Assume cars and coal are the only two things that the two countries trade. Also assume one trading day is 9 hours long.

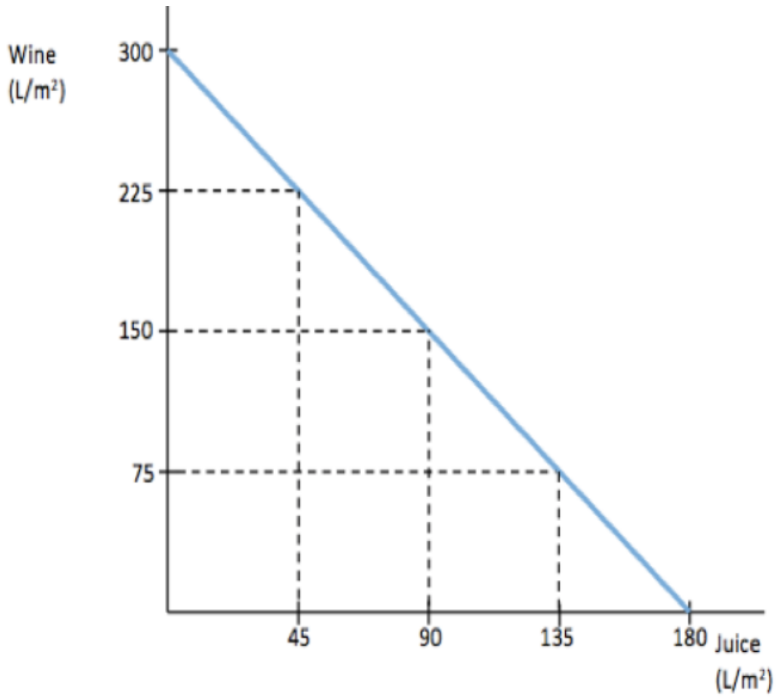
- Cars per hour
- 81
- Opportunity cost
- 720 tonnes of coal
- Comparative advantage
- 96
- Minimised
- 108
- Cars
- Absolute advantage
- Tonnes of coal
- Maximised

By specialising, the two countries have minimised _____.
In one trading day, Australia will produce _____.
In one trading day, Japan will produce _____ cars.

Answers: Opportunity cost; 720 tonnes of coal; 108

3.2.9 Question 9

Roy owns a vineyard and is considering what to produce with his grapes. He can either produce red wine or grape juice (both measured in litres). Shown below is Roy's production possibilities curve for his farm which is 250 square metres.



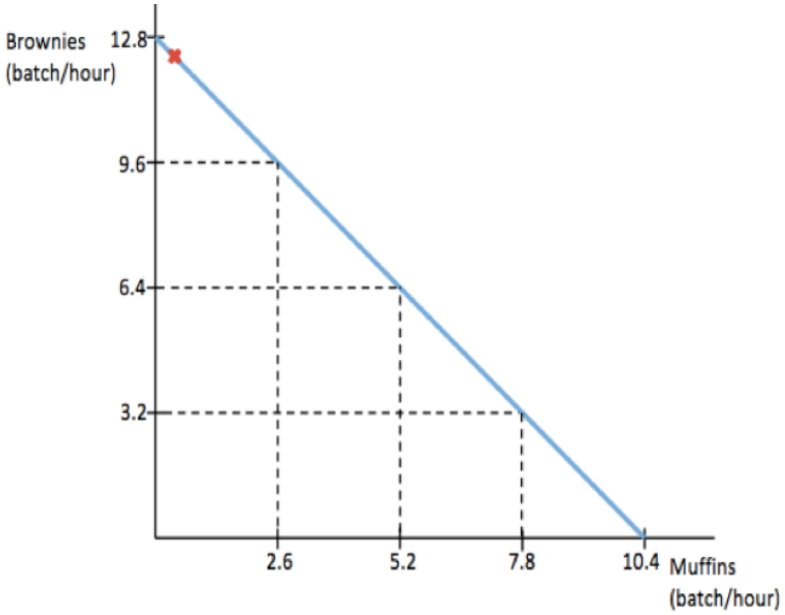
What is his opportunity cost of producing 1 litre of grape juice? Answer to the nearest two decimal places. [a] litres of wine.

$$\begin{aligned} y &= 300 - \frac{75}{45}x \\ &= 300 - \frac{75}{45} \\ &= 298.33 \end{aligned}$$

Therefore the opportunity cost is $300 - 298.33 = 1.67$

3.2.10 Question 10

Hilary owns a bakery and is trying to decide how to maximise her output. The two baked goods she sells are brownies and muffins. Shown below is Hilary's production possibilities curve. The X denotes the quantity of brownies and muffins she currently produces.



Is the current output attainable? (Yes/No)
Is the current output efficient, inefficient, or neither because it is unattainable? Calculate the opportunity cost of producing 1 batch of muffins.

$$\begin{aligned} y &= 12.8 - \frac{3.2}{2.6}x \\ &= 12.8 - \frac{3.2}{2.6} \\ &= 11.57 \end{aligned}$$

Therefore the opportunity cost is $12.8 - 11.57 = 1.23$