

**Midterm I**  
**50 minutes**  
**Introduction to Microeconomics 1101 – Lecture 1**  
**Michael Rolleigh**

**Name:** \_\_\_\_\_

**Section Number:** \_\_\_\_\_

**TA Name:** \_\_\_\_\_

**The above is worth 5 points (not bonus).**

**On the following pages, please show all of your work.**  
**If you need more space, use the back of the page.**  
**Calculators are NOT allowed, but you may leave answers as fractions.**  
**Fully label all graphs.**

**Question 1 (15 points)**

Fez and Hyde are trapped on a desert island. Only two production possibilities exist on the island, 70's Clothes and 70's Music. The table below shows the time required to produce a good for each person:

	70's Clothes	70's Music
Fez	2 hours	4 hours
Hyde	1 hour	3 hours

Assuming that Fez and Hyde are endowed with 60 hours each, sketch a Production Possibility Frontier for Fez and sketch a Production Possibility Frontier for Hyde, putting 70's Clothes on the X-axis.

Calculate their opportunity costs and fill in the table below with your answers:

	70's Clothes	70's Music
Fez		
Hyde		

Who has a comparative advantage in 70's Music (according to the above data, not the TV show)? Why?

Who has an absolute advantage in 70's Music? Why?

**Question 2 (15 points)**

Consider the perfectly competitive market for raincoats. Sketch a demand/supply diagram for the market for raincoats. Label the equilibrium price and quantity on your diagram.

You study survey data and observe that if umbrellas cost \$10, then 20 umbrellas are demanded, while if umbrellas cost \$30, 5 umbrellas are demanded. You study survey data and observe that if umbrellas cost \$15, then 20 raincoats are demanded, while if umbrellas cost \$20, 35 raincoats are demanded.

Calculate the Cross Price Elasticity of Demand for umbrellas and raincoats. How are these two goods related?

Suppose the price of umbrellas increases. Draw and label the effects of this shift on your diagram from above. Label the new equilibrium price and quantity. In a sentence or two, explain **why** you changed your diagram in this manner. Explicitly state what happened to equilibrium price and quantity.

**Question 3 (24 points)**

Consider the perfectly competitive market for Soy Milk in the United States.

For each of the following situations, clearly state which curve or curves move and **why**. Also clearly state what happened to equilibrium price and quantity. A complete answer requires no pictures, but you may find pictures useful to answer the question.

a). New government restrictions on soy milk production increase the costs of producing soy milk (could think of it as a decrease in technology).

b). A newly published study indicates that soy milk consumption decreases the risk of cancer and the price of yaks in Tibet falls.

c). The price regular milk (you must make an assumption about how regular milk and soy milk are related – be sure to state it clearly) decreases, and the number of soy milk suppliers increases.

d). The price of organic strawberries (you must make an assumption about how organic strawberries and soy milk are related – be sure to state it clearly) falls and new technology makes the production of soy milk cheaper.

e). The price of soy beans increases and the price of tea in China falls.

f). A newly published study indicates that soy milk consumption increases your risk of cancer and the number of soy milk producers increases.

**Question 4 (6 points)**

Suppose you knew that:

Quantity Demanded =  $500 - 2P$

Quantity Supplied =  $700 + 3P$

VERY briefly explain how you can solve for equilibrium P and Q. Then solve for equilibrium P and Q.

**Question 5 (15 points)**

Consider the consumer's choice between DVD's and Whoppers . Assume that Income = \$200  
Price of DVD = \$20  
Price of Whopper = \$4  
Draw a budget line and the consumer's optimal consumption bundle, putting DVD's on the X-axis.

Assume that the consumer's Income Elasticities of Demand for the goods are:  
DVD's = **1.7**  
Whoppers = **.5**  
What do the above values tell you about the goods?

Graphically illustrate the effects of a decrease in the price of DVD's from \$20 to \$15 on the consumer's optimal consumption bundle. Be sure to use all of your relevant assumptions. Be sure to clearly illustrate the income and substitution effects.

**Question 6 (5 points)**

Using the information from problem 4, derive the demand curve for DVD's. Be sure to indicate where you get the points in the demand curve. ( HINT: You must derive ONLY 2 points on the demand curve, not the usual 3 that we did in class and HW)

**Question 7 (5 points)**

Consider the market for toilet paper.

Given the following data, calculate the price elasticity of demand for toilet paper.

When price = \$1, consumers demand 100 rolls.

When price = \$2, consumers demand 150 rolls.

What does the value of price elasticity of demand tell us about toilet paper?

**Question 8 (10 points)**

Consider the perfectly competitive market for roses. You observe that the price of roses is \$15 per dozen, and 10,000 dozen roses are traded. Construct a supply/demand diagram illustrating this initial equilibrium.

Suppose that a new government policy aimed at making roses available to everyone sets a legal maximum price of \$10 per dozen. What kind of price control is this?

Graphically illustrate the effects of this government price control. Is there a shortage or surplus in the market?

Did the government succeed in making more roses available? How do you know this?

**Bonus (6 points)**

What is the marginal rate of substitution between Whoppers and DVD's at each of the optimal consumption bundles in problem 5? (you should get a numerical answer)