Economics 101	Name ANNOTATED KEY
Spring 2019	TA Name _____
April 16, 2019	Discussion Section # _____
Midterm Exam 2	Student ID # _____

VERSION 1

DO NOT BEGIN WORKING UNTIL THE INSTRUCTOR TELLS YOU TO DO SO.
READ THESE INSTRUCTIONS FIRST.

You have 75 minutes to complete the exam, **including filling in your scantron**. The exam consists of **33 multiple choice questions worth 3 points each for a total of 99 points**. The last point is administrative and earned by accurately and completely providing your **name, ID number, discussion section number, version number, and TA name** on the scantron sheet and the exam booklet. Answer all questions on the scantron sheet with a #2 pencil. There are 20 printed pages in this exam, including this cover sheet. Do not pull the exam apart or remove the staple.

WARNING: NO COMMUNICATION OR CALCULATING DEVICES, OR FORMULA SHEETS ARE ALLOWED. NO CONSULTATION AND CONVERSATION WITH OTHERS ARE ALLOWED WHILE YOU ARE TAKING THE EXAM OR IN THE EXAM ROOM. ACADEMIC MISCONDUCT IS A SERIOUS OFFENSE AND PUNISHABLE TO THE FULLEST EXTENT.
PICK THE BEST ANSWER FOR EACH QUESTION.

How to fill in the scantron sheet and other information:

1. Print your last name and first name in the spaces marked "Last Name," and "First Name". Fill in the corresponding bubbles below.
2. Print your student ID number in the space marked "Identification Number." Fill in the bubbles.
3. Write **the number of the discussion section you've been attending under "Special Codes" spaces ABC**, and fill in the bubbles. The discussion numbers can be found at the last page of this exam.
4. Write the **version number** of your exam booklet **under "Special Codes" space D**, and fill in the bubble. The version number is at the top of this page.

   Example: If you are registered for section 341 and it says "VERSION 2" at the top of this page, your "Special Codes" should read 3412.

- **If there is an error on the exam or you do not understand something, make a note on your exam booklet and the issue will be addressed AFTER the examination is complete. No questions regarding the exam can be addressed while the exam is being administered.**
- **When you are finished, please get up quietly and bring your scantron sheet and this exam booklet to the place indicated by the instructors.**

Erika Frost	Laura Boisten	Hiroaki Shirai
341 F 11:00 – 11:50 am Van Hise 575	**346** F 11:00 – 11:50 am Van Hise 495	**351** Th 3:30 – 4:20 pm Soc Sci 5322
348 F 12:05 – 12:55 Ingraham 222	**347** F 12:05 – 12:55 pm Ingraham 224	**352** Th 4:35 – 5:25 pm Soc Sci 6224
	340 F 1:20 – 2:10 pm Soc Sci 6224	**343** F 8:50 – 9:40 am Van Hise 207
		349 F 9:55 – 10:45 am Van Hise 240

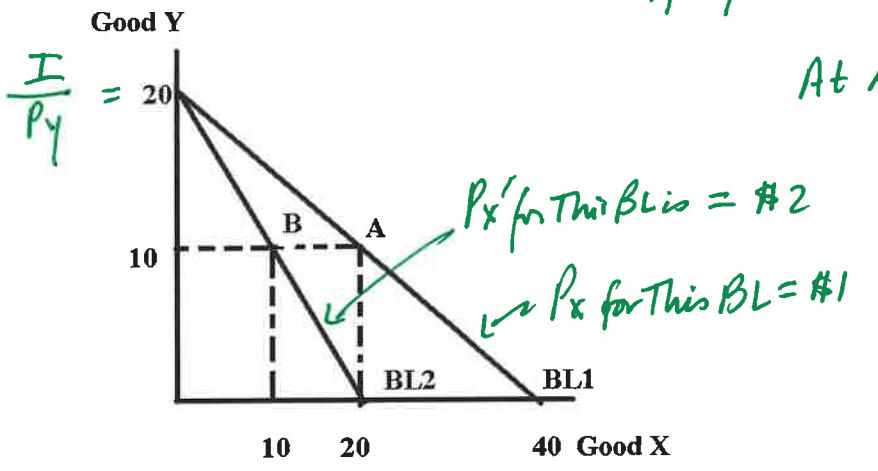
I, _____, agree to neither give nor receive any help on this exam from other students. Furthermore, I understand that use of a calculator on this exam is an academic misconduct violation. I also understand that failure to cover my answers is academic misconduct: it is important that I maintain the integrity of my work and that I do not make it available to other students.

Signed _____

NOT TOO HARD

1. You are provided the following graph depicting Babette's budget line one, BL1, and Babette's budget line two, BL2. When Babette faces BL1 she maximizes her utility by consuming the consumption bundle designated as point A. When Babette faces BL2 she maximizes her utility by consuming the consumption bundle designated as point B. Suppose you also know that the price of good Y is \$2 per unit.

If $P_Y = \$2 \Rightarrow$ Income $= \$40$ since $\frac{I}{P_Y} = 20$

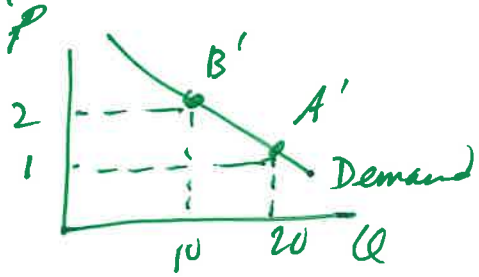


At A: $(Q_1, P_1) = (20, \$1)$

At B: $(Q_2, P_2) = (10, \$2)$

P_X for This BL is $= \$2$

P_X for This BL $= \$1$



Given the above information and holding everything else constant, what is the equation for Babette's demand curve for good X? Assume that the her demand curve for quantities between 10 and 20 units can be described by a linear demand curve.

a. P = 20 – (1/10)Q
b. P = 10 – (1/10)Q
c. P = 6 – (1/10)Q
d. P = 3 – (1/10)Q

Demand curve:

$y = mx + b$

$P = -\frac{1}{10}Q + b$

if $P = 1$, $Q = 20$

$1 = (-\frac{1}{10})(20) + b$

$3 = b$

$\boxed{P = 3 - \frac{1}{10}Q}$

Use the following information to answer the next TWO (2) questions.

Consider the market for bananas in the small open economy of Macroland. This market is characterized by the following, where Q is quantity of bananas, and P is the price of a unit of bananas in dollars:

Domestic Demand: P = 1,000 – 2Q
Domestic Supply: P = (1/2)Q
World Price = $100

} ⇒ for #3 $2Q^D = 1000 - P$, $Q^D = 500 - \frac{1}{2}P$, $Q^S = 2P$

EASY

2. What is the quantity of bananas that will be imported or exported into Macroland when the market for bananas is completely open to trade in Macroland?

a. 450 bananas will be imported.
b. 200 bananas will be exported.
c. 250 bananas will be imported.
d. 200 bananas will be imported.

SOME WORK

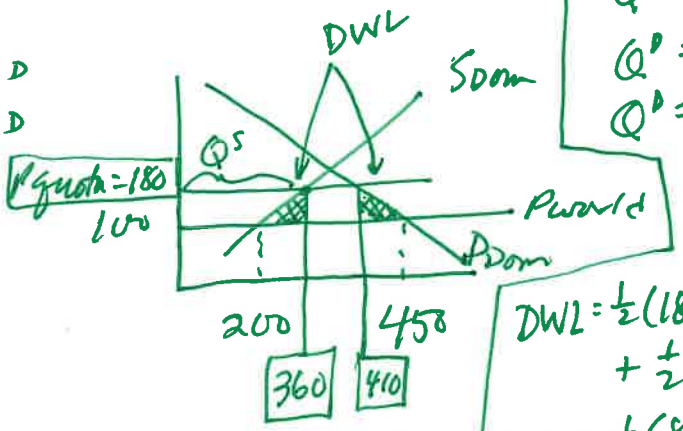
3. Suppose now that Macroland's dictator decides to impose an import quota of 50 bananas. What is the deadweight loss associated with this policy?

a. $8,000
b. $6,400
c. $3,200
d. $12,800

2. If $P = P_W = 100$

$P = 1,000 - 2Q^D$
$100 = 1,000 - 2Q^D$
$2Q^D = 900$
$Q^D = 450$
$P = \frac{1}{2}Q^S$
$100 = \frac{1}{2}Q^S$
$Q^S = 200$

Imports $= Q^D - Q^S = 450 - 200 = 250$



3. $Q^S + \text{Import Quota} = Q^D$

$2P + 50 = 500 - \frac{1}{2}P$
$\frac{5}{2}P = 450$
$P_{quota} = 450\left(\frac{2}{5}\right) = 180$

if $P_{quota} = 180$
$Q^S = 2(180) = 360$
$Q^D = 500 - \frac{1}{2}(180)$
$Q^D = 500 - 90 = 410$

$DWL = \frac{1}{2}(180-100)(360-200) + \frac{1}{2}(180-100)(450-410)$
$DWL = \frac{1}{2}(80)(160) + \frac{1}{2}(80)(40)$
$DWL = (80)(80) + (40)(40)$
$DWL = 6400 + 1600$
$DWL = 8000$

Use the following information to answer the next THREE (3) questions.

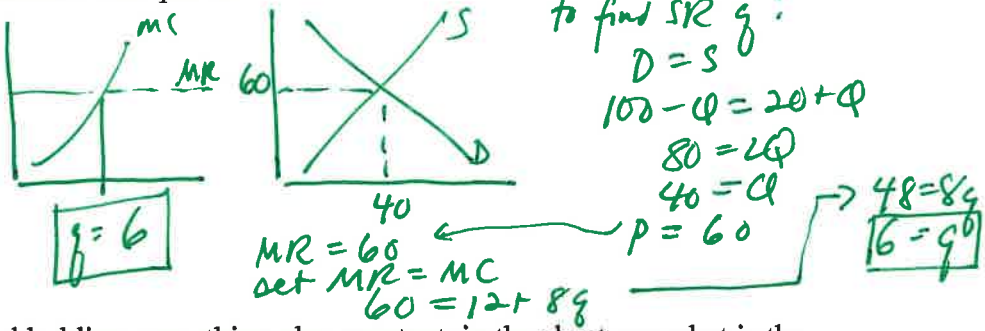
Consider a perfectly competitive market and a representative firm in that market. Assume that all firms are identical in this market. The relevant market and firm information is below:

Market Demand Curve: $P = 100 - Q$
Market Supply Curve: $P = 20 + Q$

Total Cost for the Representative Firm: $TC = 100 + 12q + 4q^2$
Marginal Cost for the Representative Firm: $MC = 12 + 8q$

NOT BAD 4. Given this information and holding everything else constant, in the short run how many units of output, q, will the representative firm produce?

a. q = 40 units
b. q = 60 units
c. **q = 6 units**
d. q = 5 units



SOME WORK 5. Given this information and holding everything else constant, in the short run what is the value of the representative firm's profits?

a. Profit = $360
b. Profit = $316
c. **Profit = $44**
d. Profit = $0

$\Pi = TR - TC$
$TR = P \cdot q = 6(60) = \$360$
$TC = 100 + 12q + 4q^2 = 100 + 12(6) + 4(6^2)$
$TC = 100 + 72 + 4(36) = 172 + 144 = \$316$
$\Pi = 360 - 316 = \$44$

NOT HARD 6. Given this information and holding everything else constant, what is the long run equilibrium price in this market?

a. $60 per unit
b. $55 per unit
c. $45 per unit
d. **$52 per unit**

LR equilibrium price is where MC = ATC
$ATC = \frac{TC}{q} = \frac{100}{q} + 12 + 4q$
$12 + 8q = \frac{100}{q} + 12 + 4q$
$4q = \frac{100}{q}$
$4q^2 = 100$
$q^2 = 25$
$q = 5$

To find P plug $q = 5$ into MC or ATC:
$MC = 12 + 8(5)$
$MC = P = 52$

WORKSPACE
DO NOT REMOVE THIS SHEET!
Exam Continues Below!

Definitional

7. Why do we assume that indifference curves never intersect with each other?

Utility is different, but constant, on each IC curve

a. Indifference curves do not intersect in order to make sure that we have constant utility. X

Basic property of IC

b. Indifference curves do not intersect in order to make sure that the individual's preferences are consistent.

c. Indifference curves do not intersect because that would make using indifference curves to analyze consumer utility maximization too complicated. X Silly answer

d. Indifference curves do not intersect because the further you are from the origin the lower is the individual's utility. X

→ higher

APPLICATION OF DEFINITION: EASY

8. Cafe Starbags is a new coffee shop on State Street. After extensive market research, the owners of Café Starbags find that the income elasticity of frappuccinos is 0.5 and the cross-price elasticity of bagels and espresso is -0.8. Given this information and holding everything else constant, which of the following statements is true?

a. Frappucinos are an inferior good and bagels and espressos are substitutes.
b. Frappucinos are an inferior good and bagels and espressos are complements.
c. Frappucinos are a normal good and bagels and espressos are substitutes.
d. Frappucinos are a normal good and bagels and espressos are complements.

$\epsilon_I > 1$ ⇒ Frappuccinos are normal good ⇒ eliminates (a) and (b)

$\epsilon_{bagels, espresso} < 1$ ⇒ Bagels & espresso are complements ⇒ eliminates (c)

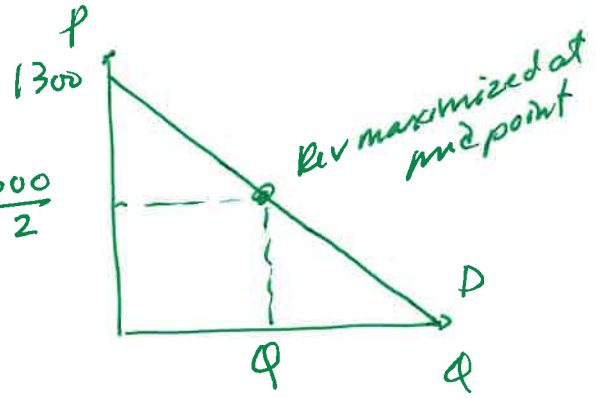
EASY!

9. In the market for widgets the demand curve is given by the following equation where P is the price in dollars and Q is the quantity of widgets:

Market Demand Curve: $P = 1300 - (1/25)Q$

Suppose the goal of the firm providing widgets to this market is to maximize their revenue. Then given this information and holding everything else constant, this firm should produce:

a. (975)(25) widgets.
b. (650)(25) widgets.
c. 25 widgets.
d. (500)(25) widgets.



$650 = \frac{1300}{2}$

if $P = 650 \Rightarrow$

$650 = 1300 - (\frac{1}{25})Q$

$(\frac{1}{25})Q = 650$

$Q = (650)(25)$

EASY QUESTION IF YOU REALIZE ZACH CAN'T AFFORD (B) and (C) ⇒ THEN JUST COMPARE $\frac{MU_i}{P_i}$ ratios

10. The table below shows Zach's marginal utilities from ice cream and chocolate. Suppose the price of ice cream is $2 per serving of ice cream, the price of chocolate is $3 per piece of chocolate and his income is $12. Given this information and holding everything else constant, what is Zach's optimal consumption bundle?

Q ice cream	MU ice cream	Q chocolate	MU Chocolate
1	24	1	21
2	18	2	18
3	12	3	15
4	8	4	12
5	4	5	9

a. 4 servings of ice cream and 1 piece of chocolate ✗
b. 4 servings of ice cream and 4 pieces of chocolate ✗
c. 2 servings of ice cream and 3 pieces of chocolate ✗
d. 3 servings of ice cream and 2 pieces of chocolate

BL: $12 = 2(\text{icecream}) + 3(\text{chocolate})$

Optimization requires:

$$\frac{MU_{icecream}}{P_{icecream}} = \frac{MU_{chocolate}}{P_{chocolate}}$$

$$\frac{MU_{icecream}}{2} = \frac{MU_{chocolate}}{3}$$

(a) can afford this bundle but does not use all his income ⇒ MU/P ratios not equal
(b) cannot afford this bundle
(c) cannot afford this bundle
(d) $(3)(2) + (2)(3) = 12$ ⇒ can afford bundle

$$\frac{MU_{icecream}}{P_{icecream}} = \frac{12}{2} = 6 \qquad \frac{MU_{chocolate}}{P_{chocolate}} = \frac{18}{3} = 6$$

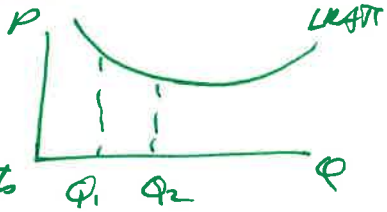
"=" so optimization rule satisfied

EASY

11. (Just two answers here!) Jon operates a factory and this year Jon decided to triple his employment of labor, his employment of raw materials, and his employment of capital. This decision to increase the amount of labor, raw materials and capital that he uses did not affect the price of any of these inputs. Jon only uses labor, raw materials and capital to produce his product. At the end of the year Jon realized that he had managed to produce four times as much output as he had prior to this increase hiring of labor, raw materials, and capital. From this information we can conclude that:

a. Jon's factory experienced decreasing costs per unit and increasing returns to scale.
b. Jon's factory experienced increasing costs per unit and increasing returns to scale.

Initially $ATC = \frac{TC}{Q}$

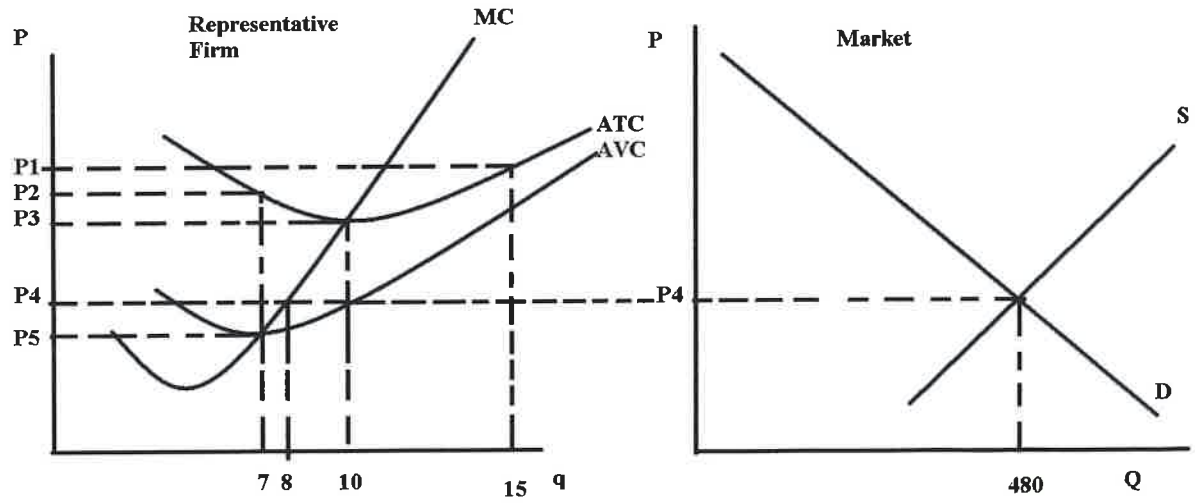


Then $ATC' = \frac{3TC}{4Q}$ → since he tripled his hiring of inputs → given in the paragraph

$ATC' < ATC$
↳ As Q ↑, ATC ↓ ⇒ decreasing costs & IRTS

Use the following information to answer the next THREE (3) questions.

The graphs below are of a perfectly competitive market and a representative firm in that market.



EASY

12. Given the above graph and holding everything else constant, how many firms are in this market in the short run?

a. 480 firms
b. 8 firms
c. 80 firms
d. 60 firms

# of firms in market = $\frac{Q}{q}$

When S=D at P_4 => $q = 8$, $Q = 480$

$\frac{480}{8} = 60$ firms

EASY

13. Suppose in the long run there are 75 firms in this market. Given this information and the above graphs, what is the total output produced in this market in the long run?

a. 525 units
b. 750 units
c. 600 units
d. 1125 units

In LR firm produces that q where MR = ATC => q = 10

Q = (# of firms)(output/firm)

Q = (75)(10) = 750 units

SOME THOUGHT HERE

14. In the short run this firm will always choose to produce provided that:

a. Its total revenue is greater than (7*P5).
b. Its variable cost is less than (7*P5).
c. Its fixed cost is less than [(P2 – P5)*7].
d. Its total revenue is greater than [(P2 – P5)*7].

In the SR the firm will produce if it TR > VC

FC doesn't matter in SR

Use the following information to answer the next FOUR (4) questions.

Martina's utility from consuming cookies (C) and milk (M) is described by the following information:

Utility = 2CM
Marginal utility of cookies = MUc = 2M
Marginal utility of milk = MUm = 2C

Martina's income is initially equal to $100 and the price of cookies is $5 per unit and the price of milk is $10 per unit.

EASY

15. Given the above information, Martina's budget line is:

a. 100 = 10C + 5M
b. 20 = C + 2M
c. 20 = 2C + M
d. M = 10 – (1/2)C

SOME WORK

16. Given the above information and holding everything else constant, what is the consumption bundle (C, M) that maximizes Martina's utility?

a. (C, M) = (5, 10)
b. (C, M) = (20, 5)
c. (C, M) = (10, 20)
d. (C, M) = (10, 5)

SOME WORK

17. Suppose that the price of cookies increases to $10 per unit. Given this information and holding everything else constant, what is Martina's new utility if she maximizes her utility?

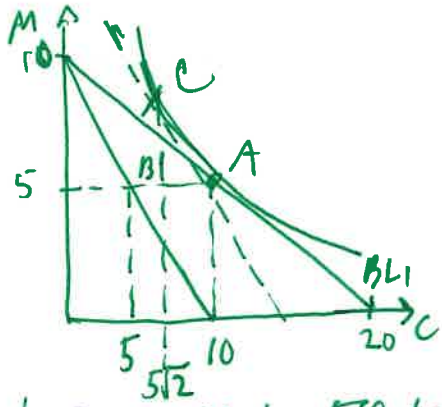
a. Utility = 100
b. Utility = 200
c. Utility = 25
d. Utility = 50

LOT OF THOUGHT AND WORK

18. The price of cookies is still $10 per unit. Which of the following expressions accurately describes Martina's substitution effect?

a. Martina's substitution effect is equal to $[(5)(2^{1/2}) - 10]$.
b. Martina's substitution effect is equal to $[(5)(2^{1/2}) - 5]$.
c. Martina's substitution effect is equal to [10 – 5].
d. Martina's substitution effect is equal to [5 – 10].

WORKSPACE
DO NOT REMOVE THIS SHEET!
Exam Continues Below!



15. BL_1: Income = 100, $P_{cookies} = 5$, $P_{milk} = 10$

$I = P_C C + P_M M$
$100 = 5C + 10M$
$20 = C + 2M$

16. BL_1: $20 = C + 2M$

Slope of IC = slope of BL
$\frac{MU_C}{MU_M} = \frac{P_C}{P_M}$
$\frac{2M}{2C} = \frac{5}{10}$
$\frac{M}{C} = \frac{1}{2}$
$2M = C$

$20 = 2M + 2M$
$20 = 4M$
$5 = M$
$\therefore C = 10$
$(C, M) = (10, 5)$ max. utility : pt A

17. New BL: $20 = 10C' + 10M'$
$10 = C' + M'$

Slope of IC = slope of BL
$\frac{MU_C}{MU_M} = \frac{P_C'}{P_M}$
$\frac{M}{C} = \frac{10}{10}$
$M' = C'$

$10 = M' + M'$
$10 = 2M'$
$5 = M'$
$\therefore C' = 5$
$(C', M') = (5, 5)$
U at $(5,5) \Rightarrow U = 2(5)(5) = 50$

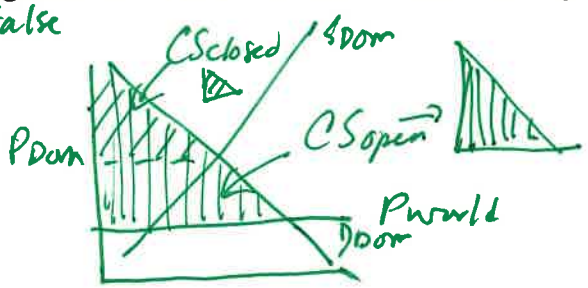
18. Substitution Effect = ↓in X from A to C
Must find C:
$U_C = U_A = 2(10)(5) = 100$
$U_C = 100 = 2C_3M_3$
$50 = C_3M_3$

$\frac{MU_C}{MU_M} = \frac{P_C'}{P_M}$ at C
$M_3 = C_3$

So
$50 = C_3^2$
$5\sqrt{2} = C_3$
Sub off = $10 - 5\sqrt{2}$

EASY 19. (Just two choices here!) Consider a small, closed economy. If this economy opens its gadget market to trade and the domestic price of gadgets is greater than the world price of gadgets then:

a. Domestic consumers in this market will favor opening this market to trade. ✓
b. Opening this market to trade will create a deadweight loss since trade creates winners and losers. False



NOT HARD IF YOU HAVE A GOOD COMMAND OF CONTENT AND PERCENTAGES

20. Consider the market for Teddy bears. You know that the price elasticity of demand is given as 2.5 in this market. If your company which manufacturers Teddy bears decides to put the Teddy bears on sale for 25% off of the original price this week and you are currently selling 200 Teddy bears per week, how many Teddy bears will you sell during this sale week?

a. 125 Teddy bears
b. 250 Teddy bears
c. 300 Teddy bears
d. 325 Teddy bears

$\epsilon^D = 2.5$

$\epsilon^D = \left| \frac{\%\Delta Q^D}{\%\Delta P} \right| = \left| \frac{\%\Delta Q^D}{-25\%} \right|$

$2.5 = \frac{\%\Delta Q^D}{25}$

2.5 × 25 = 62.5

$62.5 = \%\Delta Q^D$

$\%\Delta Q^D = \left[\frac{Q_2 - Q_1}{Q_1} \right] (100\%)$

$62.5\% = \left[\frac{Q_2 - 200}{200} \right] [100\%]$

$125 = Q_2 - 200$

$325 = Q_2$

EASY 21. Consider a specific market in a small economy where the domestic equilibrium price for the good is greater than the world price for that good. Suppose the small economy is debating three policies with regard to this specific market:

(1) keeping this market completely closed from trade,
(2) completely opening this market to trade with no implemented quotas or tariffs, and
(3) opening this market to trade while simultaneously implementing either an import quota or tariff on this good.

Which of the following statements is true? (Note: (1) > (2) > (3) means policy (1) is the most preferred, policy (2) is the second-most preferred, and policy (3) is the least-preferred.)

a. Consumers prefer (1) > (2) > (3). Producers prefer (3) > (2) > (1).
b. Consumers prefer (3) > (2) > (1). Producers prefer (1) > (2) > (3).
c. Consumers prefer (1) > (3) > (2). Producers prefer (2) > (3) > (1).
d. Consumers prefer (2) > (3) > (1). Producers prefer (1) > (3) > (2).

Ranking for consumers: #2, #3, #1

Ranking for producers: #1, #3, #2

Note only (d) has this ranking ⇒ could stop here once you realize this

EASY: DEFINITION

22. Which of the following statements is true about a normal indifference curve?

a. The total satisfaction of consuming the two goods increases as we move down along an indifference curve. FALSE: total satisfaction stays constant on IC
b. The total satisfaction of consuming the two goods decreases as we move down along an indifference curve. FALSE: total satisfaction stays constant on IC
c. The total satisfaction of consuming the two goods remains the same as we move down along an indifference curve. ✓
d. The total satisfaction of consuming the two goods sometimes increases and sometimes decreases as we move down along an indifference curve. FALSE: see (a) and (b)

MUST I KNOW DEFINITIONS – NOT HARD

23. The income elasticity of hotdogs is negative. The cross-price elasticity between hotdogs and hamburgers is positive. The cross-price elasticity between hotdogs and potato chips is negative. Given this information and holding everything else constant, which of the following scenarios will definitely increase the demand for hotdogs?

a. An increase in the price of hotdogs X
b. An increase in consumer incomes X
c. An increase in the price of potato chips X
d. An increase in the price of hamburgers

• $\epsilon_I^{HOTDOGS} < 0$: HOT DOGS INFERIOR
• $\epsilon_{HOTDOGS \text{ \& } HAMBURGERS} > 0 \Rightarrow$ HOTDOGS & HAMBURGERS ARE SUBSTITUTES
• $\epsilon_{HOTDOGS \text{ \& } CHIPS} < 0 \Rightarrow$ HOTDOGS & CHIPS ARE COMPLEMENTS

(a) causes movement along D curve for hotdogs
(b) causes D hotdogs to shift left: ↓ in Demand
(c) causes D hotdogs to shift left: ↓ in Demand
(d) causes D hotdogs to shift to right: ↑ in Demand

NOT HARD

24. The demand curve for pencils is described by the following equation where P is the price per pencil in cents and Q is the quantity of pencils:

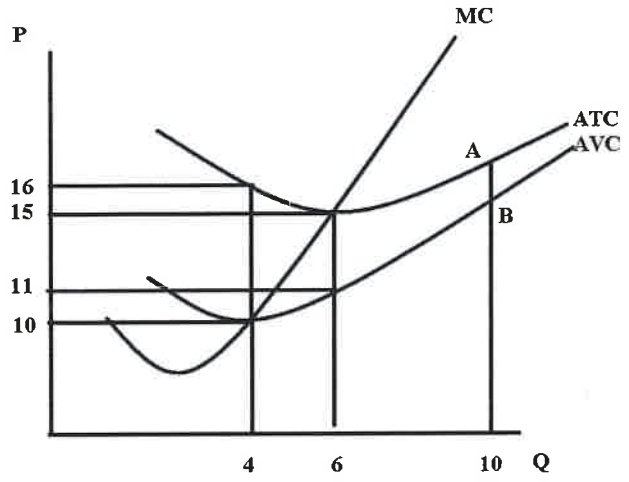
Market Demand Curve: $Q = 25 - (1/5)P$

The current price of a pencil is 75 cents. If the price increases to 90 cents what is the price elasticity of demand? Use the arc elasticity or midpoint method to calculate this elasticity.

a. 33/17
b. 3/2
c. 17/33
d. 2/3

Use the following information to answer the next THREE (3) questions.

The graph below depicts a firm's cost curves.



NOT THAT HARD

25. Suppose this firm produces 6 units of output and sells these units for \$15 per unit. How many of the following statements are true given this information?

- At this price and output combination this firm breaks even. TRUE SINCE P=min ATC
- This firm's variable costs are equal to \$66. TRUE $VC = AVC \cdot q = 11(6) = 66$
- This firm's average total costs are equal to \$90. FALSE ATC = #15 when q = 6
- This firm's fixed costs are less than its variable costs. TRUE

↳ $FC = (15-11)(6) = \#24$

$VC = \#66$

a. One statement is true.
b. Two statements are true.
c. Three statements are true.
d. Four statements are true.

WRONG ANSWER MARKED: CORRECT ANSWER IS CC) !!

EASY

26. (Only two answers here!) If this firm produces four units of output then:

a. Its variable costs are equal to \$10. False ⇒ if AVC = #10/unit
b. Its average total cost is equal to \$16.

NOT HARD

27. Consider the distance from point B to point A in the above graph. What is this distance equal to?

a. This cannot be determined from the provided information.
b. This distance is so small that we might as well view this distance as equal to a value of \$0 per unit.
c. This distance must be equal to \$2.40 per unit.
d. This distance must be equal to \$2 per unit.

FROM #25 WE KNOW FC = #24

at $q = 4 \Rightarrow FC = (16-10)(4) = 24$

at $q = 6 \Rightarrow FC = (15-11)6 = 24$

do if $q = 10$

$FC = 24$

do $FC = (AFC)(q)$

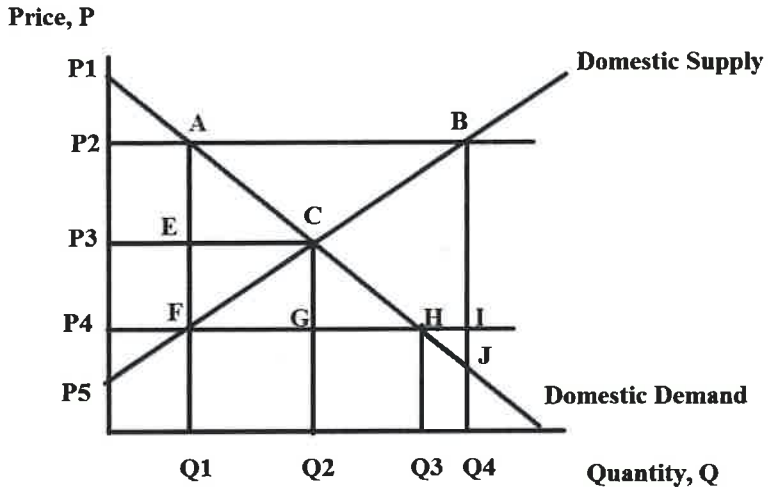
$FC = (\text{distance B to A})(10)$

$24 = (\text{distance B to A})(10)$

↳ Distance B to A = #2.40

Use the following information to answer the next TWO (2) questions.

The graph below represents the market for widgets in a small economy. For this problem, we refer to areas by their vertices (For example, the triangle for consumer surplus when closed to trade can be represented by the area P1-C-P3).



NOT HARD

28. If this market is currently closed to trade and the world price of widgets is equal to P4, then we know that if this market opens to trade, then:

a. This economy will import (Q4 – Q1) units of the good. X Imports equal $(Q_3 - Q_1)$
b. Producer surplus will be equal to area P5-F-P4. True
c. The difference between the new area of consumer surplus with trade and the initial area of consumer surplus without trade will be area P2-A-C-P3. X with area P3 C H P4
d. The area of deadweight loss due to opening this market to trade will be area C-F-H X with open mkt, no DWL!

NOT HARD

29. If this market is currently closed to trade and the world price of widgets is equal to P2, then we know that if this market opens to trade, then:

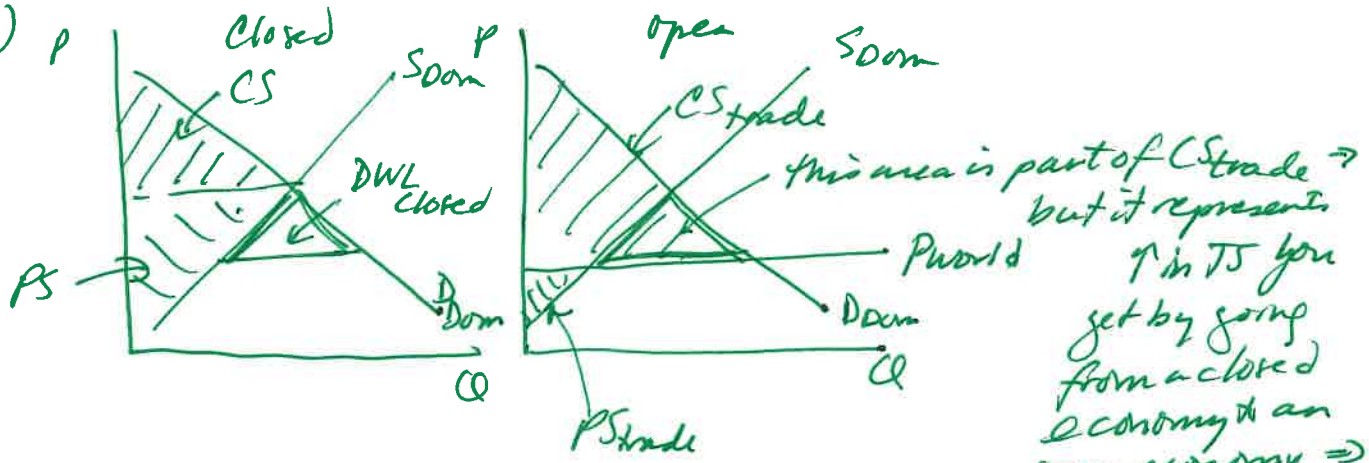
a. Consumer surplus will be equal to the area P1-H-P4. X No CS_{trade} = area P1 A P2
b. Producer surplus will be equal to the area P2-B-P5. Yes
c. Total surplus will be equal to the area P1-C-P5. X No TS_{trade} = area P1 A B P5
d. The deadweight loss from this market being opened to trade is equal to area A-B-C. X No, with open mkt → no DWL!

EASY 30. (Only two choices here!) Which of the following statements is true?

a. Consider a small closed economy. In this economy there is a market for good X where the equilibrium price and quantity are determined by the intersection of the supply and demand curves and the equilibrium price is greater than the world price. In the market for good X there is no deadweight loss.

b. Trade creates winners and losers. TRUE

(a)



NOT HARD 31. In the market for gadgets suppose that the price elasticity of demand is equal to 0.5. If prices increase by 15% in this market this implies that the percentage change in the quantity demanded will be:

a. an increase of 7.5%. X
b. a decrease of 7.5%.
c. an increase of 2%. X
d. a decrease of 2%. X

$\epsilon^D = 0.5$

$\epsilon^D = \left| \frac{\%\Delta Q^D}{\%\Delta P} \right|$ if $P \uparrow$, $Q^D \downarrow$ eliminates (a) & (c)

$0.5 = \frac{\%\Delta Q^D}{15\%}$

$(0.5)(15) = \%\Delta Q^D$ (remember $Q^D \downarrow$ here so we need to remember to put in the negative sign!)

$-7.5\% = \%\Delta Q^D$

Use the following information to answer the next TWO (2) questions.

Daniel has $20 available to spend on cheese (C) and wine (W). The price of a unit of cheese is $2 and the price of a unit of wine is $4.

Daniel's Utility Function: U= 2*(C)*(W)
Marginal Utility of Wine = 2*(C)
Marginal Utility of Cheese = 2*(W)

NOT TOO BAD

32. Given this information and holding everything else constant, what it the maximum utility that Daniel can have from wine and cheese?

a. Utility = 16 utils
b. Utility = 9 utils
c. Utility = 25 utils
d. Utility = 21 utils

$BL: \boxed{20 = 2C + 4W}$

$\frac{MU_W}{MU_C} = \frac{P_W}{P_C}$

$\frac{2C}{2W} = \frac{4}{2}$

$\frac{C}{W} = \frac{2}{1}$

$\boxed{C = 2W}$

$20 = 2(2W) + 4W$
$20 = 8W$
$2.5 = W$
$\therefore C = 2(2.5) = 5$
$(W, C) = (2.5, 5)$
$U = 2(5)(2.5)$
$U = 10(2.5) = 25$

NOT TOO BAD

33. Suppose Daniel's income increases to $32. Given this information and holding everything else constant, are wine and cheese normal or inferior goods for Daniel?

a. both goods are normal goods
b. both goods are inferior goods
c. wine is an inferior good and cheese is a normal good
d. wine is a normal good and cheese is an inferior good

$BL_2: \quad 32 = 2C + 4W$
$C = 2W$

Find optimization bundle:

$32 = 2(2W) + 4W$
$32 = 8W$
$4 = W$ ⟶ so when Inc ↑, W ↑ from 2.5 to 4
W is normal

END OF EXAM. THANK YOU!

if $W = 4 \Rightarrow C = 8$ ⟶ so when Inc ↑, C ↑ from 5 to 8
C is normal