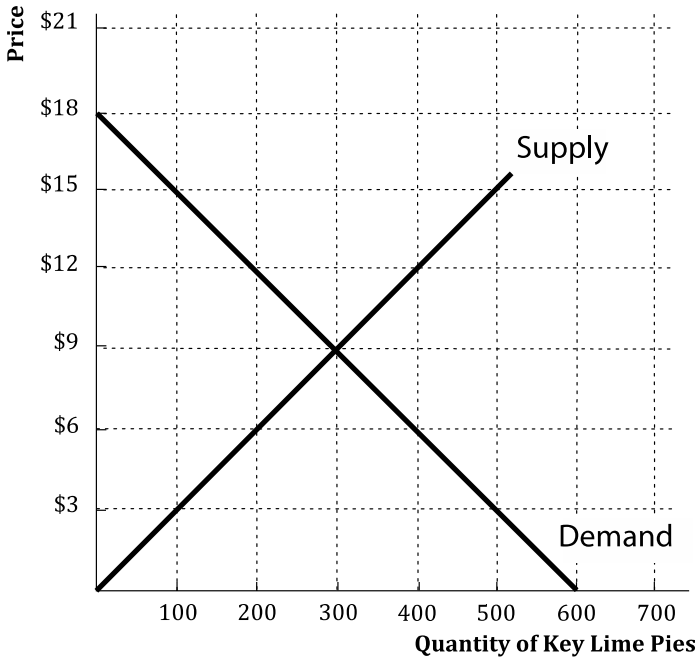
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Name:_____ Student ID:_____ Section:_____

PRICE CONTROLS AND TAXES
WORKSHEET 2

Below, you are provided with the demand and supply curves for key lime pies. You will use this information to analyze the effect of a price ceiling set below the equilibrium price of a key lime pie. You will identify the equilibrium price and quantity of pies before the price ceiling is imposed, and the market price and quantity of pies after the price ceiling is imposed. You will also examine the changes in consumer surplus, producer surplus, and total surplus before and after the price ceiling is imposed.



Part 1: Identify the equilibrium price of a key lime pie and the equilibrium quantity of key lime pies that are bought and sold at that price.

The equilibrium price is $9 per pie, and the equilibrium quantity is 300 pies.

Part 2: Calculate the amount of consumer surplus that is generated by this market.

$1,350

Part 3: Calculate the amount of producer surplus that is generated by this market.

$1,350

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Part 4: Calculate the amount of total surplus that is generated by this market.

$2,700

Part 5: Suppose that the government imposes a price ceiling of $6 per key lime pie. Identify the resulting market price of a key lime pie and the quantity of key lime pies that are bought and sold at this price.

The market price is $6 per pie, and the quantity is 200 pies.

Part 6: Suppose that the government imposes a price ceiling of $6 per key lime pie. Calculate the amount of consumer surplus that is generated by this market after the imposition of this price ceiling.

$1,800

Part 7: Suppose that the government imposes a price ceiling of $6 per key lime pie. Calculate the amount of producer surplus that is generated by this market after the imposition of this price ceiling.

$600

Part 8: Suppose that the government imposes a price ceiling of $6 per key lime pie. Calculate the amount of total surplus that is generated by this market after the imposition of this price ceiling.

$2,400

Part 9: Suppose that the government imposes a price ceiling of $6 per key lime pie. Calculate the amount of deadweight loss associated with this price ceiling.

$300

Part 10: Complete the statement below.

*The deadweight loss associated with a price ceiling that is set below the equilibrium price of a good or service is the amount by which _____ (consumer, producer, **total**) surplus falls in response to the imposition of the price ceiling.*

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Solutions to Problems

CHAPTER 1

1.1 Answers will vary, but should include the notion that each activity provides benefits in the form of satisfaction or additional income, but also takes time away from the pursuit of other activities (opportunity cost). Time spent on each activity is limited because the additional benefit of devoting an extra unit of time to any one activity falls as more time is devoted to the activity. Hence, as more and more time is spent on one activity, it will become increasingly attractive to devote the next unit of time to some other activity.

1.2 The average cost is $1.43($39.99/28). The marginal cost is $0.

1.3 When you choose to attend college, you are foregoing working and earning wages, so your opportunity costs are lost income and benefits from your best employment alternative. If you chose not to attend college, the opportunity cost would be the potentially higher earnings from a job that requires a college degree. People without college degrees also face higher levels of unemployment throughout their lifetime.

1.4 (a) From the standpoint of the women's shelter, Monique is free. From Monique's standpoint, she gives up other uses of her time as well as wages that could be earned elsewhere.

(b) The $12 million could have been invested in other profit-making ventures or projects, or it could have been put in the bank or loaned to someone else with interest.

(c) The other goods and services or investments that Taylor could buy with $500.

(d) The other uses of time or the foregone wages he could have earned had Hector decided to work during the summer.

(e) The tuition spent on the doctoral program which could have been spent on other things, forgone wages had Molly chosen to enter the job market instead of continuing with her education, study time, and so on.

(f) The cost of paint and supplies, as well as the time Sanjay is giving up that could be used for other activities.

(g) Tiffany gives up the chance at a better grade, and depending on her grade, she may even need to pay to retake the class. This could possibly even affect her admission to a better grad school or obtaining a higher-paying job. She has traded off an investment in human capital (staying in to study) for present consumption (staying out too late).

1.5 Jeff Bezos does face scarcity because resources are limited. A person's net worth does not change the fact that everyone faces scarcity. Consider one of our most important resources—time. There are only 24 hours in a day, and everyone, including Bezos, must live their lives under this constraint, making decisions about how to spend this time.

1.6 Answers will vary based on the occupations you selected.

2.1 Answers will vary.

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2.2 (a) This is an example of a microeconomic concern since it addresses a potential change in operations for a particular industry.

(b) This is an example of a macroeconomic concern since it addresses a potential change in marginal tax rates that would impact the entire nation.

(c) This is an example of a microeconomic concern since it addresses wages for a specific firm in a specific industry.

(d) This is an example of a macroeconomic concern since it addresses a change in unemployment benefits, which impacts the whole economy.

3.1 Answers will vary.

3.2 (a) positive

(b) positive

(c) normative

(d) positive

(e) normative

3.3 (a) Each state should allow the market to provide what people want. Since smoking marijuana is not mandatory, only those who want to partake will do so. Tax revenues that arise from the purchase of recreational marijuana are paid voluntarily.

(b) Some argue that using marijuana is associated with reduced productivity that has a cost to the community at large. In addition, marijuana is considered by some to be addictive and can lead to the use of harder drugs. These concerns bear on the efficiency argument to the extent that there are costs from marijuana use that are not reflected in the price of marijuana. These costs could potentially affect the community at large (e.g., the social cost of addiction) or the individual (to the extent that marijuana use creates an unwanted addiction).

(c) Legalized marijuana has a number of fairness issues around it. First, a lot of people believe marijuana is not harmful and can provide desired benefits, and they want to receive these benefits. But many consider marijuana use to be bad and disagree with its legalization. A big fairness issue is that people who use marijuana may become addicted to it and possibly addicted to even harder drugs. Like many other issues of its kind, there are positives and negatives from the fairness side. Equity arguments are always the subject of disagreement.

(d) Tax revenue would likely fall in those states that had legalized marijuana use prior to its legalization in all 50 states. For those states that just legalized marijuana use, tax revenues would likely rise.

3.4 Answers will vary.

3.5 (a) This statement confuses correlation and causation. There is most likely a correlation between people who eat kale and also exercise daily, since both are healthy actions, but the act of eating kale is not the cause of people exercising on a daily basis.

(b) This statement is an example of the *post hoc fallacy*. Just because Cassandra watched the game with her ferret and the Cubs won, this does not mean that watching the game with Bobo caused the Cubs to win.

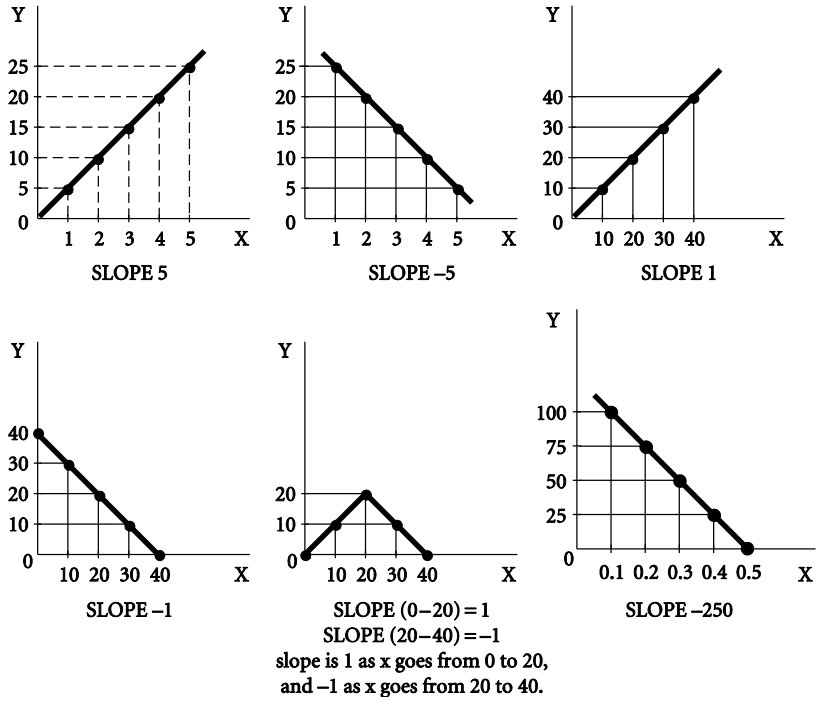
(c) This statement is an example of the fallacy of composition, which is the erroneous belief that what is true for a part is necessarily true for the whole. Requiring all salespeople to attend a motivational training workshop would waste resources on those employees who do not need motivation, and would not be a good use of time for those employees.

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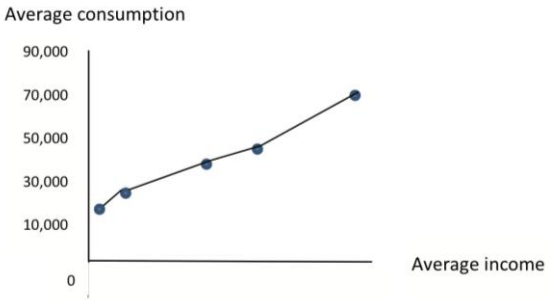
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CHAPTER 1 APPENDIX

1A.1 The slopes are as follows: line 1: 5; line 2: –5; line 3: 1; line 4: –1; line 5: slope is 1 as *X* goes from 0 to 20, and –1 as *X* goes from 20 to 40; line 6: –250.



1A.2 There is a positive relationship between income and consumption.



1A.3 Answers will vary.

(a) Negative slope. As price rises, quantity of apples purchased falls.

(b) Positive (and declining) slope. As income rises, taxes rise; but the rise in taxes is less at higher incomes than at lower incomes.

(c) Negative (and declining) slope. As mortgage rates fall, home sales increase, but the increase in home sales is more at lower mortgage rates than at higher mortgage rates.

(d) Negative, then positive slope. As young children get older, they run faster, but as adults get older (beyond a certain age), they run slower.

(e) Positive slope. Greater sunshine leads to greater corn yield.

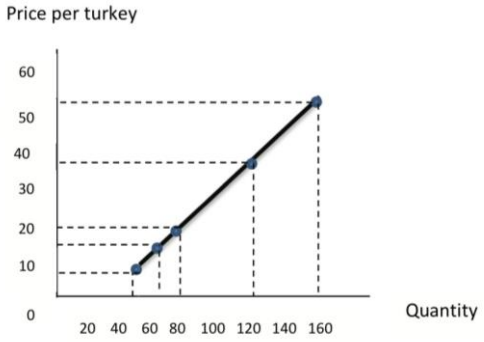
(f) Positive, then negative slope. Up to a point, more fertilizer increases corn yield, but beyond a certain point, adding more fertilizer actually decreases the yield.

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1A.4 (a) The relationship between the price of turkeys and the quantity of turkeys sold by Godfrey's Free-Range Gobblers is a positive relationship because as the price increases, the quantity sold increases.

(b) The slope of the line is equal to 0.4.



1A.5 At point *A*, the tangent line runs through the points ($p = 34$, $q = 20$) and ($p = 24$, $q = 45$). The slope is therefore $(34 - 24)/(20 - 45) = 10/-25 = -0.4$.

At point *B*, the tangent line runs through the points ($p = 12$, $q = 90$) and ($p = 5$, $q = 140$). The slope is therefore $(12 - 5)/(90 - 140) = 7/-50 = -0.14$.

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