Microeconomics 2026 (Canadian) 1st edition Karlan Solutions Manual

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CHAPTER 1
ECONOMICS AND LIFE

Review Questions

1. Suppose you are shopping for new clothes to wear to job interviews, but you're on a tight budget. In this situation, what are your wants and constraints? What does it mean to behave rationally in the face of scarcity? **[LO 1.1]**

   Answer: If you are deciding what to buy for a job interview, your want is to buy clothing that looks clean and professional, so you can present the best possible impression to potential employers. Your constraint is the amount of money you can spend on this clothing. A person behaving rationally would buy the nicest clothes they could afford.

2. You are a student with a demanding schedule of classes. You also work part-time and your boss allows you to determine your work schedule. In this situation, what is your scarce resource? How do you decide how many hours to work? **[LO 1.1]**

   Answer: Your scarce resource is time. You need time both to study and to work. Presumably, you want to do well in school and also make money. You will try to balance your schedule so that you work as much as possible while still having enough time to study and do well in school.

3. Think about the definition of scarcity that you learned in this chapter. Name three ways that you confront scarcity in your own life. **[LO 1.1]**

   Answer: We face scarcity in many aspects of our lives. I love to travel and explore new places. I face scarcity in both time and money that keeps me from traveling as often as I would like. In my professional life, I also face scarcity. There are lots of worthy projects I would like my department to take on, but I am limited in my available resources of employees, time, and budget. Collectively, as a society, we want more camping sites in the summer months. But there are limited number of sites available.

4. When shopping for your interview clothes, what are some trade-offs you face? What is the opportunity cost of buying new clothes? What are the benefits? How do you balance the two? **[LO 1.2]**

   Answer: One trade-off is that the money you spend on clothes for a job interview could be spent on other things instead. One opportunity cost of buying new clothes is other things forgone. Another opportunity cost is the time you spend shopping, which could be spent preparing for your interview or playing Frisbee. The benefits include looking put-together during the interview, which provides a boost to your job prospects. You balance the costs and benefits by accepting costs that are less than (or no greater than) the benefits they provide.

5. You have an 8:00 class this morning but you are feeling extremely tired. How do you decide whether to get some extra sleep or go to class? **[LO 1.2]**

   Answer: If you are behaving rationally, you decide by comparing the trade-offs. The opportunity cost of going to class is missing out on some extra sleep. Depending on what else is on your schedule that day (perhaps an important job interview), it may make sense to choose more sleep over class. The opportunity cost of extra sleep is that you will miss the lecture. If your grade will suffer significantly by your absence or the lecture promises to be really interesting, you may want to grab some coffee and go to class!

6. It's Friday night. You already have a ticket to a concert, which cost you $30. A friend invites you to go out for a game of paintball instead. Admission would cost you $25, and you think you'd get $25 worth of enjoyment out of it. Your concert ticket is nonrefundable. What is your opportunity cost (in dollars) of playing paintball? **[LO 1.2]**

   Answer: The opportunity cost of going to play paintball is whatever amount of enjoyment (in dollars) you would get out of going to the concert. The thirty dollars you paid for the concert ticket is not relevant to the decision, as it is a sunk cost and is nonrefundable regardless of what you do.

7. Suppose you have two job offers and are considering the trade-offs between them. Job A pays $45,000 per year and includes health insurance and two weeks of paid vacation. Job B pays $30,000 per year and includes four weeks of paid vacation but no health insurance. **[LO 1.2]**

   a. List the benefits of Job A and the benefits of Job B.
   b. List the opportunity cost of Job A and the opportunity cost of Job B.

   Answer:
   a. The benefits of Job A are the extra pay and health insurance. For Job B, the benefit is two extra weeks of vacation.
   b. The opportunity cost of Job A is losing out on the extra two weeks of vacation that comes with Job B. For Job B, the opportunity costs are the extra $15,000 in salary along with the health insurance.

8. Your former neighbours gave you their lawnmower when they moved. You are thinking of using this gift to mow lawns in your neighborhood this summer for extra cash. As you think about what to charge your neighbours and whether this idea is worth your effort, what opportunity costs do you need to consider? **[LO 1.2]**

   Answer: You need to consider the opportunity cost of mowing lawns. Your lawn mowing business would need to cover the opportunity cost of what you could have earned in a different summer job. You also need to consider operating costs (e.g. gasoline for the mower, spark plugs) and the value of the lawn mower itself. Just because it was a gift does not mean that it has no opportunity cost. The opportunity cost of using the lawnmower for your business is its sale value, if you decide to sell the gift rather than use it yourself. Your lawn mowing business needs to cover all of these costs (the value of your time in another job, gasoline, and the sale value of the lawnmower) in order for it to be a worthwhile endeavor.

9. Think of a few examples of incentives in your daily life. How do you respond to those incentives? **[LO 1.2]**

   Answer: Throughout the day, I am reminded to not park in the wrong spot (lest I get a ticket), get five cents for every glass I recycle, and set aside five percent of my income to a RRSP. For the most part, I respond rather favorably to these incentives.

10. You supervise a team of salespeople. Your employees already receive a company discount. Suggest a positive incentive and a negative incentive you could use to improve their productivity. **[LO 1.3]**

    Answer: For a positive incentive, you could offer a reward such as a bonus, a gift certificate, or an extra discount on company merchandise to the most productive employee of the month. For a negative incentive, you could announce that employees who fail to meet targets will lose their company discount.

11. Your boss decides to pair workers in teams and offer bonuses to the most productive team. Why might your boss offer team bonuses instead of individual bonuses? **[LO 1.3]**

    Answer: Your boss is creating a reward system for a project that requires group effort. Even if you are not motivated to compete for an individual bonus, you are likely to feel responsibility to your teammate and make a greater effort to be productive. Your teammate can encourage, pressure, and/or help you to achieve greater productivity.

12. Think of a public policy—a local or national law, tax, or public service—that offers an incentive for a particular behavior. Explain what the incentive is, who is offering it, and what they are trying encourage or discourage. Does the incentive work? **[LO 1.3]**

    Answer: Provincial and federal governments provide subsidy on green energy projects. This provides an incentive for electricity producers to switch their production to renewable sources. They are trying to encourage the production of green energy to reduce the carbon emission in Canada. This incentive will help reduce greenhouse gas emission by changing the composition of electricity production in the long run.

13. Why do individuals or firms usually provide the goods and services people want? **[LO 1.4]**

    Answer: It is for their own private interests that Individuals or firms provide goods and services people want. By fulfilling what people (buyers) want, individuals and firms also receive what they themselves want. If firms didn't produce goods that people want, no one would buy their goods. These firms would lose money and go out of business, and would be replaced by firms that did produce goods that customers want.

14. You may have seen social media advertisements for products or programs that claim to teach a surefire way to make millions on the stock market. Apply the *Why isn't everyone already doing it?* test to this situation. Do you believe the ads? Why or why not? **[LO 1.4]**

Answer: Guessing which stocks are going to perform well and which are going to tank is extremely challenging, which makes it very hard to make millions in the stock market. You should not believe the ads for that reason. (If there really was a surefire way to make millions, everyone would already be doing it!)

15. Describe an innovation in technology, business, or culture that had a major economic impact in your lifetime. **[LO 1.4]**

    Answer: The Internet has completely changed the way people do business. While writing this textbook, we have collaborated with people all over the country, sharing documents online that we once would have had to send through the mail.

16. Why do people confuse correlation with causation? **[LO 1.5]**

    Answer: Correlation means that two events occur together. Since the two often occur together, people often believe that one causes the other, but this is not always true. People once thought that ice cream caused polio, for example. The real relationship was that people ate more ice cream in the summer, and this also happened to be the time of year that the polio virus spread more rapidly. It is sometimes the case whether a relationship is correlative and causal is hard to detect, due to for example the lack of sufficient data or knowledge.

17. Name two things that are positively correlated and two things that are negatively correlated. **[LO 1.5]**

    Answer: Things that are positively correlated tend to occur together. In my household, candy and children are positively correlated. I don't have much of a sweet tooth, but I always stock up on candy when the nieces and nephews visit. Things that are negatively correlated tend not to occur together. According to auto insurers, good grades and the risk of getting in a car accident are negatively correlated. (People with higher grades tend to be safer drivers.)

18. Why is it important for a good economic model to predict cause and effect? **[LO 1.6]**

    Answer: A good model must predict cause and effect so that it can explain something about what we have observed and can help us anticipate what will happen in future observations.

19. Why is it important for a good economic model to make clear assumptions? **[LO 1.6]**

    Answer: A good model must make clear assumptions so we know when the model will do a good job at explaining or predicting our observations and when it will not.

20. What is the difference between disagreeing about a positive statement and disagreeing about a normative statement? **[LO 1.7]**

    Answer: A positive statement is something that is supposed by fact, whereas a normative statement is a value judgment. So disagreeing with a normative statement means you disagree with someone's opinion. Disagreeing with a positive statement means disputing the truth of fact.

21. Would a good economic model be more likely to address a positive statement or a normative statement? Why? **[LO 1.7]**

    Answer: A good model predicts cause and effect and can be tested with evidence. Thus, positive statements are more likely to be addressed by a good model.

22. Write a positive statement and a normative statement about your favorite hobby. **[LO 1.7]**

    Answer: Positive statement: Regular exercising improves health. Normative statement: The government should subsidize exercising to reduce the burden on the health care system.

Problems and Applications

1. Goods and resources can be scarce for reasons that are: inherent to their nature at all times; temporary or seasonal; or artificially created. Indicate which of the goods and resources listed below (if any) are either artificially scarce (AS), or inherently scarce (IS). **[LO 1.1]**
   a. air of any quality
   b. land
   c. patented goods
   d. original Picasso paintings

   Answer: Goods and resources can be scarce for reasons that are inherent to their nature at all times, temporary or seasonal, or artificially created.
   a. *Not scarce*. Air (of any quality) is abundant and need not be rationed through prices or some other allocation mechanism
   b. *Inherently scarce*. Land is finite in supply; land is available for development, but no new land can be created.
   c. *Artificially scarce*. Patented goods are scarce by law; only the patent holder may legally supply these goods.
   d. *Inherently scarce*. Original Picasso paintings are finite; no new ones can be created beyond those that currently exist.

2. You are looking for a new apartment in Edmonton. Your income is $4,000 per month, and you know that you should not spend more than 25 percent of your income on rent. You have come across the following listing for one-bedroom apartments on Kijiji. You are indifferent about location and transportation costs are the same to each neighborhood. **[LO 1.2]**

Downtown	$1,2500
Allendale	21,200
MacEwan	950
Queen Mary Park	1500

a. Which apartments fall within your budget? (Check all that apply.)

b. Suppose that you adhere to the 25 percent guideline but also receive a $1,000 cost-of-living supplement since you are living and working in Edmonton. Which apartments fall within your budget now?

Answer:
a. MacEwan. Your income and income guidelines represent a constraint on the choices available. Under these guidelines, because 25 percent of your monthly income is $1,000, the only apartments you can afford are located in MacEwan (at $950). All others are unattainable to you.
b. The $1,000 monthly cost-of-living supplement expands your set of living options. You can now afford any apartment that costs $2,000 or less. All locations are now a possibility except Allendale.

3. Suppose the price of a sweater is $26. Jaylen's benefit from purchasing each additional sweater is given in the table below. Jaylen gets the most benefit from the first sweater and less benefit from each additional sweater. If Jaylen is behaving rationally, how many sweaters will they purchase? **[LO 1.2]**

	Marginal benefit ($)
1st sweater	60
2nd sweater	45
3rd sweater	40
4th sweater	33
5th sweater	22
6th sweater	18

Answer: Jaylen will purchase all of the sweaters for which the marginal benefit is greater than the marginal cost. If the price of a sweater is $26, this is the marginal cost, as each additional sweater will cost $26. For the first four sweaters, the marginal benefit exceeds the marginal cost, so Jaylen will purchase those four sweaters. For the fifth and sixth sweaters, the marginal cost of $26 exceeds the marginal benefit.

	Marginal Benefit ($)	Marginal Cost ($)
1st sweater	60	$26
2nd sweater	45	$26
3rd sweater	40	$26
4th sweater	33	$26
5th sweater	22	$26
6th sweater	18	$26

4. Sweaters sell for $15 at the crafts fair. Allie knits sweaters and her marginal costs are given in the table below. Allie's costs increase with each additional sweater. If Allie is behaving rationally, how many sweaters will she sell? **[LO 1.2]**

	Marginal benefit ($)
1st sweater	5
2nd sweater	8
3rd sweater	12
4th sweater	18
5th sweater	25
6th sweater	32

Answer: Allie will sell all of the sweaters for which the marginal benefit is greater than the marginal cost. If the price of a sweater is $15, this is the marginal benefit, as Allie will receive $15 for each additional sweater she sells. For the first three sweaters, the marginal benefit exceeds the marginal cost, so Allie will sell three sweaters.

	Marginal Benefit ($)	Marginal Cost ($)
1st sweater	5	$15
2nd sweater	8	$15
3rd sweater	12	$15
4th sweater	18	$15
5th sweater	25	$15
6th sweater	32	$15

5. Last year, you estimated you would earn $5 million in sales revenues from developing a new product. So far, you have spent $3 million developing the product, but it is not yet complete. Meanwhile, this year you have new sales projections that show expected revenues from the new product will actually be only $4 million. How much should you be willing to spend to complete the product development? **[LO 1.2]**

   a. $0.
   b. Up to $1 million.
   c. Up to $4 million.
   d. Whatever it takes.

   Answer: C. *Up to $4 million*. The $3 million you have spent already is a sunk cost and cannot be recovered. Therefore, the $3 million you have spent is irrelevant to the decision of how much to spend going forward. This year, the relevant decision is: How much are you willing to spend to have $4 million in revenue? If you had known that product development may cost you more than you will gain in revenues, you should not have started this project. But at this point, by thinking on the margin you can see that you should be willing to move forward as long as the costs of going forward are not greater than the benefits of going forward ($4 million).

6. Consider the following examples. For each one, say whether the incentive is positive or negative. **[LO 1.3]**
   a. Bosses who offer time-and-a-half for working on national holidays.
   b. Mandatory minimum sentencing for drug offenses.
   c. Fines for littering.
   d. Parents who offer their children extra allowance money for good grades.

Answer:
a. Positive.
b. Negative.
c. Negative.
d. Positive.

7. Consider the following events that change prices. For each one, say whether the opportunity cost of consuming the affected good increases or decreases. **[LO 1.3]**

	Affected good
a. A local movie theater offers a student discount.	Movie tickets
b. A tax on soft drinks passes in your province.	Soft drinks
c. Subsidies on corn are cut in half.	Corn subsidies
d. Your student health centre begins offering flu shots for free.	Flu Shots

Answer:
a. Decreases.
b. Increases.
c. Increases.
d. Decreases.

8. Your best friend has an idea for a drive-through bar. Indicate the best explanation for why others have not already taken advantage of this idea: true innovation, market failure, government intervention, unprofitable. **[LO 1.4]**

Answer: *Government intervention.* In most places, drive-thru bars are (wisely) illegal.

9. A friend is proposing to set up a long-distance car service to drive people across the country. Indicate the best explanation for why others have not already taken advantage of this idea: true innovation, market failure, intervention, unprofitable. **[LO 1.4]**

Answer: *Unprofitable.* There are alternatives for customers that can be cheaper than car service. For example, buses can offer cheaper prices than a car service could. While a car is less costly to operate than a bus, a bus can more than make up the difference in operating costs by accommodating many more passengers.

10. Determine whether each of the following questionable statements is best explained by correlation without causation, an omitted variable, or reverse causation. **[LO 1.5]**
a. In cities that have more police, crime rates are higher.
b. Many retired people live in provinces where everyone uses air conditioning during the summer.

c. More people come down with the flu during the Winter Olympics than during the Summer Olympics.
d. For the last five years, Wiarton Willie has seen his shadow on Groundhog Day, and spring has come late.

Answer:

a. Reverse causation: Cities with higher crime rates will tend to have larger police departments.
b. Omitted variable: Having a large number of retired people live in a province does not cause everyone to use their air conditioner. Retired people tend to move to warmer provinces and living in a warm-weather province causes everyone to use air conditioning in the summer.
c. Omitted variable: The Winter Olympics do not cause the flu. The flu season falls during Winter months, which increases the incidence of flu cases at the Winter Olympics vs. the Summer (correlation without causation).
d. Correlation without causation: There is no plausible cause-and-effect relationship here.

11. For each of the pairs below, determine whether they are positively correlated, negatively correlated, or uncorrelated. **[LO 1.5]**
    a. Time spent studying and test scores.
    b. Vaccination and illness.
    c. Soft drink preference and music preference.
    d. Income and education.

    Answer:
    a. Positively correlated.
    b. Negatively correlated.
    c. Uncorrelated.
    d. Positively correlated.

12. Each statement below is part of an economic model. Indicate whether the statement is a prediction of cause and effect or an assumption. **[LO 1.6]**
    a. People behave rationally.
    b. If the price of a good falls, people will consume more of that good.
    c. Mass starvation will occur as population outgrows the food supply.
    d. Firms want to maximize profits.

    Answer:
    a. Assumption.
    b. Prediction of cause and effect.
    c. Prediction of cause and effect.
    d. Assumption.

13. From the list below, select the characteristics that describe a good economic model. **[LO 1.6]**
    a. Includes every detail of a given situation.
    b. Predicts that A causes B.
    c. Makes approximately accurate assumptions.

d. Fits the real world perfectly.
e. Predicts things that are usually true.

Answer: A good model should predict cause and effect (b), state its assumptions clearly (c) and predicts things that are usually true (e). Economists test their models by observing what happens in the world and collecting data that can be used to support or reject their models.

14. Determine whether each of the following statements is positive or normative. (Keep in mind that a positive statement isn't necessarily *correct*; it just makes a factual claim rather than a value judgment.) **[LO 1.7]**
    a. People who pay their bills on time are less likely than others to get into debt.
    b. Hard work is a virtue.
    c. Everyone should pay their bills on time.
    d. China has a bigger population than any other country in the world.
    e. China's One-Child Policy (which limits families to one child each) helped to spur the country's rapid economic growth.
    f. Lower taxes are good for the country.

    Answer: A statement that makes a factual claim about how the world actually works is called a *positive* statement. A statement that makes a claim about how the world should be is called a *normative* statement. Economics is a field in which people frequently confuse positive statements with normative statements. However, you do not have to adopt a particular moral or political point of view to use economic concepts and models.
    a. Positive (relationship can be confirmed or refuted based on evidence).
    b. Normative (a value judgement; cannot be confirmed or refuted based on evidence).
    c. Normative (a value judgement).
    d. Positive (can be confirmed or refuted based on evidence).
    e. Positive (can be confirmed or refuted based on evidence).
    f. Normative (a value judgement).

15. You just received your midterm exam results and your professor wrote the following note: "You received a 70 on this exam, the average score. If you want to improve your grade, you should study more." Evaluate your professor's note. **[LO 1.7]**
    a. Is the first sentence positive or normative?
    b. Is the second sentence positive or normative?

    Answer: A statement that makes a factual claim about how the world actually works is called a *positive* statement. A statement that makes a claim about how the world should be is called a *normative* statement. Economics is a field in which people frequently confuse positive statements with normative statements. However, you do not have to adopt a particular moral or political point of view to use economic concepts and models.
    a. Positive.
    b. Normative.

CHAPTER 1
ECONOMICS AND LIFE

Chapter Overview

Economists approach problems differently from many other people. Underlying economics is the basic principle of rational behavior—that people typically make choices to achieve their goals in the most effective way possible, subject to the constraints they face. In this chapter we have introduced the basic concepts economists use, as well as four questions they ask to break down problems. Throughout this book, students will see these concepts and questions over and over again:

1. Scarcity: What are the wants and constraints of those involved?
2. Opportunity cost: What are the trade-offs?
3. Incentives: How will others respond?
4. Efficiency: Are resources being allocated in the best way possible?

In later chapters, as we progress to more complicated problems, students should use these four questions to break down problems into manageable pieces, ones they can understand using the fundamental concepts presented in this chapter.

Learning Objectives

LO 1.1: Explain the economic concept of scarcity.
LO 1.2: Explain the economic concepts of opportunity cost and marginal decision making.
LO 1.3: Explain the economic concept of incentives.
LO 1.4: Explain the economic concept of efficiency.
LO 1.5: Distinguish between correlation and causation.
LO 1.6: List the characteristics of a good economic model.
LO 1.7: Distinguish between positive and normative analysis.

Chapter Outline

- OPENING STORY: MAKING AN IMPACT WITH SMALL LOANS
- The Basic Insights of Economics
    - Scarcity **(LO 1.1)**
    - Opportunity cost and marginal decision making **(LO 1.2)**
        - BOX FEATURE: WHAT DO YOU THINK? – THE OPPORTUNITY COST OF A LIFE
    - Incentives **(LO 1.3)**
    - Efficiency **(LO 1.4)**
- An Economist's Problem-Solving Toolbox

- Distinguishing between correlation and causation **(LO 1.5)**
- Correlation without Causation **(LO 1.5)**
- Omitted variables **(LO 1.5)**
  - BOX FEATURE: FROM ANOTHER ANGLE – DOES ICE CREAM CAUSE POLIO?
- Reverse causation **(LO 1.5)**
- Using models to interpret data **(LO 1.6)**
  - BOX FEATURE: ECONOMICS IN ACTION – WHEN EDUCATION PAYS OFF
- Distinguishing between positive and normative analysis **(LO 1.7)**
  - BOX FEATURE: WHAT DO YOU THINK? – THE COST OF UNIVERSITY EDUCATION

- Conclusion

Beyond the Lecture

Class Discussion: Scarcity (LO 1.1)
Have students review this TED talk by Peter Diamandis. Peter highlights the impact of human ingenuity on scarcity and argues that we should be optimistic about the use of technology to address problems in the future. This is a great springboard for discussion.

1. Do students think that technology will continue to improve living standards and mitigate the problems associated with scarcity?

Writing Assignment: Opportunity Cost and Marginal Decision Making (LO 1.2)
Have students review this article by Russell Roberts on opportunity cost. It highlights some basic examples that are familiar to students. Require students to write a brief essay on the opportunity costs associated with decisions in their lives, decisions that firms make, or government decisions. This can be used as a catalyst for class discussion as well.

Class Discussion: Opportunity Cost and Marginal Decision Making (LO 1.2)
The class that you teach is most likely 50 or 75 minutes in length. Poll the students (perhaps informally or using software such as Poll Everywhere or clickers) and ask them what they would be doing during this hour if they were not in class. Some possible answers may include sleeping (especially for an early AM class), working out, studying for another course, watching TV, eating, or many others. This is a great introduction to opportunity cost – the cost of attending class is giving up the next best alternative of your time. Questions to ask include:

1. Is your opportunity cost the same as other students' opportunity cost?
2. Does the fact that you chose to attend class today mean that sitting in this economics lecture is the best use of your time during this hour?

Class Discussion: Incentives (LO 1.3)
In order to highlight the importance of incentives, consider discussing Chapter 3 of *Freakonomics* by Steven Levitt and Stephen Dubner with your students. The chapter provides insight into the career of an individual who is involved in the illegal drug market. You could also ask students to review this Los Angeles Times commentary on the chapter, also written by Levitt and Dubner.

1. Ask students to consider why an individual would be willing to endure the risks associated with the illegal drug market given the relatively low pay and poor working conditions that many workers endure. Students really enjoy this interesting discussion.
2. How does this market compare to other markets? There are surprising similarities and differences between legal markets and the black market.

Clicker Questions

There are three main purposes to clicker questions. First, they are a great way to do a quick and instant "on demand" test of student understanding of the material. You can cover material, and instantly get feedback on student comprehension. You can see whether you need to explain certain topics again, or move on to the next subject. Second, they are a great method to break up the class and take a moment away from lecture. It gets the students actively involved. Finally, certain clicker questions can be framed in a "discussion" manner, in which you can invite students to talk about the possible right answer with their peers. You can instruct students to convince their classmate of a right or wrong answer.

1. What is the result of scarcity of goods and services? **[LO 1.1]**
A. People can have all the goods they desire at any price
B. Only government can provide enough goods for the people
C. People may experience poverty
D. Any economic system must have a method to allocate goods and services

Feedback: With scarcity, we don't have enough goods to freely be given to everyone to satisfy all wants. Thus, a method to allocate goods must be used. This could include prices, or other methods. Note that poverty isn't a direct result of scarcity – scarcity affects all people, both rich and poor.

2. "Children eat more ice cream in the summer. Children are more likely to drown in the summer. We can conclude that ice cream consumption causes drowning." The previous statement is an example of____________. **[LO 1.5]**
A. Normative economic statements
B. Negative incentives resulting in undesirable outcomes
C. Confusing correlation with causation
D. Opportunity cost creating tradeoffs

Feedback: Ice cream consumption and children drowning are correlated events. There is correlation, but there is no causation. One event does not cause the other, instead, they are both caused by warmer weather in the summer.

3. Which of the following do you think is most likely necessary to create a good economic model? [LO 1.6]
A. Identical to the real world and no simplifications
B. Changing assumptions until all problems are eliminated in the model
C. Finding a lot of experts who agree with my opinions before building the model
D. A set of well-defined variables with data that we wish to study

Feedback: Remember that models by definition are a simplification of reality. We can't have a model that is identical to the real world economy. It would require billions of variables, trillions of data points, and multiple supercomputers to analyze the data.

4. Which of the following is an incentive your instructor could provide to get more students to attend class? **[LO 1.3]**
A. Giving extra credit to students who attend more than 90% of classes
B. Handing out candy to students who attend
C. Failing students who miss a class without a University-approved excuse
D. All of the above

Feedback: Remember that incentives can be positive or negative. We don't want to ask which incentives we would personally agree with. We just want to ask if the incentive would change behavior.

5. A rational person should only do an activity as long as ______. **[LO 1.2]**
A. The marginal benefits are greater than the marginal costs
B. There are no costs to the activity
C. It can earn them money
D. The opportunity costs of doing the activity are low

Feedback: People do activities even if opportunity costs are high. One example is going to college and not working for four years during your time as a student.