2.1 Describe what determines your willingness to pay for a product/service.

2.2 Identify why smart choices depend on marginal benefit, not total benefit, and explain what changes marginal benefit.

2.3 Describe the relationship between price and quantity demanded, and identify the role of substitutes.

2.4 Explain the difference between a change in quantity demanded and a change in demand, and distinguish five factors that change demand.

2.5 Define elasticity of demand and explain how it determines business pricing strategies.
BELIEVE IT OR NOT, economics is not really about money. It is about how individuals, businesses, and governments make the best possible choices to get what they want. Smart choices help you achieve happiness and success for yourself and others, help businesses make profits, and help governments spend your tax dollars wisely to make Canada a better place.

Of course, not all choices are smart or wise choices, and the Three Keys to Smart Choices from Chapter 1 are the keys to distinguishing smart from not-smart. The three keys are discussed more fully in this chapter.

This chapter focuses on choices you make every day as a consumer, and on the implications of those choices for how businesses price what they sell you. Economists use the term demand to summarize all of the influences on consumer choice.
2.1 Put Your Money Where Your Mouth Is: Weighing Benefits, Costs, and Substitutes

You’ve just finished an intense workout at the gym and desperately want something to drink. You usually bring along your favourite Gatorade (which costs $3 a bottle), but today you forgot it. The snack bar has bottled water and juice, but no Gatorade. Your buddy, who is always trying to make a buck, says, “I have a bottle of what you want — how much will you pay for it?”

Besides wondering if this guy is really a buddy, what do you think about to determine how much you are willing to pay him? Obviously, how thirsty you are and how refreshed you expect to feel from the drink matter a lot. But just because you badly want Gatorade does not mean you will pay, say, $10 for the bottle.

What are your alternatives? You could buy a water or juice for $2, but they don’t have the electrolytes for your muscles that Gatorade does. You could drink water from the faucet in the locker room for free. You could head home and drink the bottle you forgot, or head to a store to buy your Gatorade for $3.

You decide you so want the Gatorade now that you are willing to make an offer. You know your entrepreneurial buddy won’t take less than the $3 he paid for the bottle, so you are willing to pay $4. You make the purchase, quench your thirst — and then ditch the buddy.

We all make hundreds of choices a day that are similar — what to eat, what to wear, what to buy, whether to spend time studying, working, working out, or partying, whom to vote for.... All these choices are based (consciously or unconsciously) on a comparison of expected benefits and costs. This is Key 1 of the Three Keys to Smart Choices from Chapter 1: Choose only when additional benefits are greater than additional opportunity costs.

How Badly Do You Want It?  The first part of the comparison requires you to have a sense of the expected benefits from choosing this product, service, experience, or use of your time. The expected benefit question is, “How badly do you want it?” What satisfaction do you expect to get from this choice? The want and the satisfaction might be quite logical — I want a warm coat so I won’t freeze during the winter in Calgary; I want water because I am thirsty. I want to spend the evening studying because I have a test tomorrow. Or your desire for the latest, thinnest cell phone may be based on more emotional reasons — wanting to look cool, or to impress others, or just because, well, you want it. Businesses spend money on advertising, in part, to convince you to want their product. Economists describe all of your wants — and how intense each want is — as your preferences.

preferences: your wants and their intensities
What Will You Give Up?  For the second part of the comparison, the cost question is, “How much are you willing to give up for it?” I purposely chose the words “give up” when you might have expected me to say, “How much are you willing to pay for it?” There’s a reason for this choice, just as there are reasons for all of your choices. Many things we want — Gatorade or cell phones — we have to pay for with money. But with many other things we want, what we have to give up is our time or our effort. Spending the evening studying means not partying with friends or working at your part-time job. Cost always means opportunity cost — what you are willing to give up.

What determines how much you are willing to give up? Certainly, how badly you want it plays a role. But just as important is what your alternative choices are. There are substitutes for everything — water for Gatorade, a yoga class for a gym workout, long underwear or a move to Florida for winter coats. Substitutes need not be exactly the same product/service. Substitutes just have to basically satisfy the same want. For any choice you want to make, what you are willing to pay or give up depends on what substitutes are available, and what they cost.

The final factor determining how much you are willing to give up is how much you can afford. Are you able to pay the price of the product/service you want? Can you afford to take the time to party all evening when you have a test tomorrow?

The list of things we want is endless. But the choices we actually make reflect our willingness — and ability — to give up something in exchange. Economists use the term demand to describe consumers’ willingness and ability to pay for a particular product/service (not just what consumers want). You must put your money (or time) where your mouth is in order to demand a product/service. And those demands, or choices, are smart choices only when expected benefits are greater than opportunity costs.

1. What is the difference between wants and demands?
2. How many songs or albums by your favourite musician or group have you bought? How many have you copied or downloaded? What determined your choice between buying and downloading?
3. You have just started at a college that is a 30-minute drive from home or a 90-minute transit ride. How would you make a smart choice between taking the transit or buying a car? What are the important issues on the benefits comparison? On the cost comparison?
You make a smart choice only when expected benefits are greater than opportunity costs. But the benefits or satisfaction you expect to get depend on the circumstances.

**Marginal Benefits Change with Circumstances**

To see how benefits change with circumstances, let’s return to the Gatorade example. Suppose you remembered to bring a bottle to the gym, and gulped it all after your workout. If your greedy buddy then asked you how much you were willing to pay for another bottle, chances are it would be much less than the $4 you were willing to pay when you had few convenient Gatorade alternatives. The *additional* benefit you will get from his second bottle is less than the benefit you got from your thirst-quenching first bottle. So your willingness to pay is less for the second bottle.

What if you have a test tomorrow, and you have to choose between spending the evening studying or going to a party with a friend? If you have been studying like mad for days already, the *additional* benefit of a few more hours might not help much, so you choose to party. But if you have been busy working at your job all week and haven’t cracked a book, the *additional* benefit of studying will be large, and you give up the party time.

In both cases, the *additional* benefit you expect, and your willingness to pay (either in money or giving up party time you value), depends on the circumstances. The economist’s term for *additional* benefit is **marginal benefit**. Marginal means “on or at the edge,” just like the margins of these textbook pages are at the edges of the pages.

Key 2 of the Three Keys to Smart Choices says that when you compare expected benefits and costs, count only *additional* benefits and *additional* costs, or marginal benefits and marginal costs. Here we are explaining marginal benefits; in Chapter 3 we will explain marginal costs.

A smart decision to study (or not) does not depend on the total value of all hours spent studying, or the average value of an hour spent studying, but only on the **marginal** value of the additional time spent studying (compared with the additional cost of giving up those hours).

What if you choose to spend the evening studying, and your friend gets angry and shouts, “Is your stupid economics course more important than I am?!” At the margin, the answer is yes. Your choice to study tonight doesn’t necessarily mean that, overall, you value the course more than the friend (well, depending on the friend, you might). What your choice means is that tonight, at the margin, you value the next few hours spent studying more than you value spending the next few hours with your friend.
But margins, and circumstances, change. Your choice would be different if you had another week before the test, or if you hadn’t seen your friend for months. The value you place on an activity or thing depends on the margin, and that additional value is marginal benefit.

Your friend’s angry accusation comes from the common mistake (not smart) of looking at choices as all or nothing — friend versus economics. That’s not the (smart) choice you made at the margin — the marginal benefit of the time spent studying tonight was greater than the value, or marginal benefit, of the same time spent with your friend.

Making smart choices means living life on the edge.

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**Coke’s Automatic Price Gouging**

In the late 1990s, Coca-Cola Co. was working on technology to automatically raise prices in soft-drink vending machines on hot days. Critics — calling the plan “shameful” and a “cynical ploy” to exploit consumers “when they are most susceptible to price gouging” — suggested Coca-Cola should abandon the plan. The company claimed it was fair that the price should rise with demand, and that the machines simply automate that process. Unconvinced, critics warned that the plan would only alienate customers, with the reminder that “archrival Pepsi is out there, and you can hardly tell the difference.”

- The public reaction to these variable-price vending machines was so negative that Coca-Cola never introduced them.
- However, the strategy is based on the correct observation that willingness to pay changes with circumstances — the principle of marginal benefit.

The strategy failed not because the economics were wrong, but because the idea of paying different prices for the same product seemed so unfair — “price gouging.” [However, in Chapter 8 we will look at examples where consumers accept businesses charging different consumers different prices for the same product — cellphone minutes cost providers the same, whether daytime, evening, or weekend. Why are prices different? Hint: Consumer willingness to pay.]

Notice the line about Pepsi — substitutes are always available, which limits willingness to pay for any product, regardless of the marginal benefit.

The Diamond/Water Paradox

The distinction between looking at choices at the margin (smart) instead of as “all or nothing” or total-value choices helps make sense of the diamond/water paradox you may have heard about. What’s more valuable in providing benefit or satisfaction — diamonds or water? One answer is water. Water is essential for survival, while diamonds are an unnecessary frill. But then why do diamonds cost far more than water?

You can solve the paradox by distinguishing marginal value from total value. You would die without any water, so you would be willing to pay everything you can for the first drink. But when water is abundant and cheap, and you are not dying of thirst, what would you be willing to pay, at the margin, for your next drink today? Not much. Marginal benefit is low, even though the total benefit of all water consumed (including the first, life-saving drink) is high.

Diamonds won’t keep you alive, but they are relatively scarce, and desirable for that very reason. What would you pay for what is likely your first diamond? A lot. Marginal benefit is high. But because diamonds are scarce, there aren’t many out there (compared to drinks of water), so total benefit is low. But willingness to pay depends on marginal benefit, not total benefit, so people are generally willing to pay more for a diamond (high marginal benefit) than for a glass of water (low marginal benefit).

Marginal benefit, as we will see in Chapter 4, is important not only for making smart choices, but also for explaining how prices are determined in the real world.

1. What is marginal benefit, and on what does it depend?
2. Why are you willing to pay more for a diamond than a glass of water even though water is essential for survival and diamonds are an unnecessary luxury?
3. You and your entrepreneurial buddy have a concession stand on the beach. It is a hot, sunny, crowded day, and you are selling a few $5 collapsible umbrellas as sun parasols. The skies suddenly darken, rain begins to pour, and your buddy quickly switches the umbrella price sign to $10. Will you sell more or fewer umbrellas? Explain your thinking, including your analysis of the customer’s decision.
2.3  When the Price Isn’t Right: The Law of Demand

After weeks of boring bus rides to school and overhearing too many other riders’ personal cell phone conversations, you finally decide to buy an iPod. You research the alternatives and decide to buy the low-capacity Nano. You would have loved a bigger hard drive or an iPhone, but decided you couldn’t afford those.

Quantity Demanded

Let’s presume you made a smart choice, so the additional benefit of this iPod (listening pleasure and blocking out the world) is greater than the additional cost (the $150 price tag). You are willing and able to pay $150. Sold! An economist would say that, at the price of $150, your quantity demanded of iPod Nanos is 1.

Quantity demanded, as we will see, is not the same as demand. Quantity demanded is the amount you actually plan to buy at a given price, taking into account everything that affects your willingness and ability to pay.

We saw in the previous section that when circumstances change the additional benefit, your choice may change. The second bottle of Gatorade wasn’t worth as much as the first, and the value of an iPod would change if you were driving to school in a car with a radio instead of riding the bus. But our focus here is not on benefits. Our focus is on what happens to your buying decision when the additional cost (what you pay) changes.

Changing Prices Change Quantity Demanded  What if this iPod model were priced at $175 instead of $150? How might that change your decision to buy? You might want an iPod so badly that you would be willing to pay $175, judging that the additional benefit is still greater than the $175 cost. (That means that at $150, you felt you were getting a bargain!) But since you are a smart shopper and have limited income, you would still be thinking carefully about alternatives. There are substitutes for everything. For music and sound-blocking there are other (cheaper) MP3 players, used iPods, music downloaded to your cell phone, radios, or your older sister’s ancient Discman. The extra $25 cost might be enough to change your choice from an iPod Nano to one of these substitutes. And if the price were $225, you, along with many more consumers out there, would definitely change your smart choice away from an iPod Nano to a substitute. At a price of $225, your quantity demanded is zero.

What if Nanos went on sale for $75 instead of $150? Given your willingness and ability to pay, this is such a bargain that you decide to buy two — one for you, and one as a gift for your boy/girlfriend. At a price of $75, your quantity demanded is two.
If we put your combinations of prices (willingness to pay) and quantities demanded into a table, it looks like Figure 2.1.

<table>
<thead>
<tr>
<th>Price (willing to pay)</th>
<th>Quantity Demanded</th>
</tr>
</thead>
<tbody>
<tr>
<td>$ 75</td>
<td>2</td>
</tr>
<tr>
<td>$150</td>
<td>1</td>
</tr>
<tr>
<td>$225</td>
<td>0</td>
</tr>
</tbody>
</table>

As your eye goes down the two columns, notice that as the price rises, the quantity demanded decreases. In general, when prices rise, consumers look for substitutes. When something becomes more expensive, people economize on its use.

**Water or Brooms?** Households in the City of Toronto used to pay a flat monthly rate for water that didn’t change with the quantity of water used. So the additional cost of using more water was zero. With “free” marginal water, many residents would “sweep” their sidewalks and driveways with a hose. But when water became metered, so that users paid for each additional cubic metre, many gave up this practice and started sweeping with a broom. (Only economics teaches you that water and brooms are substitutes!) Other reactions to higher water prices included putting bricks in toilet tanks to save water, placing flow regulators on showers, taking showers instead of baths, and planting groundcover that consumes less water than grass. With a higher price for water, the quantity demanded decreased.

**The Law of Demand**

The market for any product or service consists of millions of potential customers, each trying to make a smart choice about what to buy. **Market demand** is the sum of the demands of all individuals willing and able to buy a particular product/service.

Whether it is the market for iPods, water, or anything else, substitutes exist, so that consumers buy a smaller quantity at higher prices, and a larger quantity at lower prices. This inverse relationship (when one goes up, the other goes down) between price and quantity demanded is so universal that economists call it (somewhat grandiosely) the **law of demand**: If the price of a product/service rises, the quantity demanded of the product/service decreases. The law of demand works as long as other factors besides price do not change. The next section will explore what happens when other factors do change. Will the law of demand then fail? Stay tuned.
Market Demand for Water  Figure 2.2 illustrates the inverse relationship between price and quantity demanded for the market demand for water.

### Figure 2.2  Market Demand for Water

<table>
<thead>
<tr>
<th>Price (per cubic metre)</th>
<th>Quantity Demanded (000's of cubic metres/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.00</td>
<td>5</td>
</tr>
<tr>
<td>$1.50</td>
<td>4</td>
</tr>
<tr>
<td>$2.00</td>
<td>3</td>
</tr>
<tr>
<td>$2.50</td>
<td>2</td>
</tr>
<tr>
<td>$3.00</td>
<td>1</td>
</tr>
</tbody>
</table>

The law of demand is yet another way of saying that when something becomes more expensive, people economize on its use. This law helps explain many decisions beyond shopping decisions. Mother Teresa’s charity wanted to open a shelter for the homeless in New York City. When city bureaucrats insisted on expensive but unnecessary renovations to the building, the charity abandoned the project. Mother Teresa didn’t abandon her commitment to the poor. When the cost of helping the poor in New York went up, she decided that, at the margin, her efforts would do more good elsewhere. For her charity, a shelter elsewhere was a substitute for a New York shelter.

Because there are substitutes for everything, higher prices create incentives for smart consumers to reduce their purchases of more expensive products/services and look for alternatives.

A change to a new behaviour can often be encouraged by an increase in the cost of an old behaviour. How much would a litre of gas have to cost before you switched to a bicycle?

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1. What is the law of demand?
2. You own a car and work at a job that is not accessible by public transit. If the price of gasoline goes up dramatically, does the law of demand apply to you? Explain the choices you might make in response to this increase in price.
3. You have plans to go to a concert tonight, but your mother, who is helping you pay for school, says that it’s very important to her that you instead come to Grandma’s birthday party. Explain how your decision to celebrate with Grandma illustrates the law of demand in terms of your concert plans.
The price of gasoline in Halifax rose from $0.99 per litre to $1.36 per litre between 2006 and 2008. But the quantity of gasoline motorists bought actually increased. Does that disprove the “law of demand”? If nothing else changed except the price of gasoline, the answer would be yes — and I’d have to quit this job as an economist and do something more socially useful, like being a trash collector.

But I, and other economists, have enough confidence in the law of demand that if we observe a rise in price leading to an increase in purchases, we take it as a signal that something else must have changed at the same time.

Economists use the concept of demand to summarize all the influences on consumer choice. Your demand for any product/service reflects your willingness and ability to pay. In the examples of Gatorade, iPods, and water, we have seen that your willingness to pay depends on things like your preferences, what substitutes are available, and marginal benefit. Your ability to pay depends on your income.

As long as all these factors (and a few more) do not change, the law of demand holds true: If the price of a product/service rises, the quantity demanded decreases. But when change happens, economists distinguish between two kinds of change:

- If the price of a product/service changes, that affects quantity demanded.
- If anything else changes, that affects demand.

Quantity demanded is a much more limited term than demand. Only a change in price changes quantity demanded. A change in any other influence on consumer choice changes demand. This may sound like semantic hair-splitting — quantity demanded versus demand — but it is important for avoiding not-smart thinking.

Why Bother Distinguishing Between Quantity Demanded and Demand?

Suppose you observe a witch placing a curse on some poor young man, who dies a month later. The apparent conclusion is that the curse was fatal. But if the witch had been secretly poisoning his food with arsenic all along, what was the real cause of death? Something else changed that was really behind the observed result.

What if a gasoline supplier decides to raise his prices to increase his sales, based on the observed result that when gasoline prices rose, motorists bought more gasoline. What do you think would happen? Would this be a smart choice?

We live in a complicated world, where everything depends on everything else. There are obvious connections between events like a lottery windfall increasing your spending, or high CD prices increasing music downloads. But non-economic events like the weather can affect coffee prices, and a whiff of a terrorist threat can sink airline stock prices. So when you observe a change in the economy like increased gasoline purchases, how do you decide what caused it when so many interdependent things can change at the same time? (Was the young man's death caused by curse, arsenic, or natural causes?)
Controlled Experiments  Scientists deal with this interdependence problem by performing controlled experiments in a laboratory. The law of gravity claims that, all other factors unchanged, objects fall at the same rate regardless of their weight. So if we drop a bowling ball and a feather from a tall building, and find the bowling ball hits the ground first, does that disprove the law of gravity? No, because we are not controlling for air resistance, which changes the path of the feather more than the bowling ball. To accurately test the law of gravity, we must perform the same experiment in a laboratory vacuum, so that we eliminate, or control for, the influence of air resistance as an “other factor.” We need to keep all other factors unchanged.

Economists, and citizens like you, have it much tougher than scientists. We can’t pause everything in the world except for the factors we are interested in. Instead, we have to use economics to make sense of the changes. The distinction between a change in quantity demanded and a change in demand is the economist’s way of trying to mentally mimic a controlled experiment.

The law of demand is the simplest of all the interdependent relationships. If nothing else changes, a rise in the price of gasoline will cause a decrease in the quantity demanded of gasoline.

Let’s look at the more complicated parts (like air resistance for the law of gravity) — all the important “other things” that can cause a change in demand.

Five Ways to Change Demand

Only a change in the price of a product/service itself changes quantity demanded of that product/service. But there are five important other factors that can change market demand — the willingness and ability to pay for a product/service. They are:

- Preferences
- Prices of related products
- Income
- Expected future prices
- Number of consumers

Preferences  There are many reasons why businesses advertise, but ultimately they are trying to get you to want their product, to persuade you that you need what they sell. Remember that economists use the term “preferences” to describe your wants and their intensities — so, for an economist, advertising is about increasing your preferences for a product/service.

Most car commercials are not about information but about showing you a fabulous, fun driving experience that the manufacturer wants you to believe will be yours only if you buy its car.

All businesses want to increase your preferences, because if they succeed in increasing the intensity of your want or desire for their product you will be willing to pay more for it. If Apple were to run a successful ad campaign that makes you and many other consumers feel you can’t live (and be cool) without an iPod, what would happen to your willingness and ability to pay, according to our earlier example? Look at Figure 2.3 on the next page.
Before advertising, you were willing and able to pay $150 for one iPod (row 2), while after you are now willing to pay $200. Before you were willing to buy two iPods at a price of $75 each (row 1), while after you will pay $100 each and buy two.

Your ability to pay has not changed in this example, it’s just that you are willing to give up more of your unchanged income because the intensity of your wants has increased. Advertising has succeeded in moving the margin, increasing both the marginal benefit you expect to get from the iPod and your willingness to pay. Economists call any increase in consumers’ willingness and ability to pay an increase in demand. Consumers will now be willing to pay a higher price for the same quantity of a product.

Changes in preferences can also cause a decrease in demand. What if a Health Canada study shows conclusively that regular listening to an iPod causes serious hearing loss and causes mushrooms to grow out of your ears? If you and other consumers believe the study, consumers’ willingness and ability to pay decreases, which results in a decrease in demand for iPods. Consumers will now be willing to pay only a lower price for the same quantity of a product.

When the Rolling Stones played their only 2006 Canadian concert in Moncton, New Brunswick, what happened to the demand for hotel rooms in Moncton? The large number of fans attending the concert increased the willingness to pay and increased the demand for hotel rooms. On the other hand, think of demand by tourists for hotel rooms in Toronto before and after the 2003 SARS epidemic. The fear of infectious disease decreased tourists’ preferences for Toronto hotel bookings. With decreased willingness to pay, there was a decrease in demand for Toronto hotel rooms.

Any change in preferences causes a change in demand. An increase in preferences causes an increase in demand. A decrease in preferences causes a decrease in demand.

Prices of Related Products Many products/services you choose to buy are related. Changes in price of a different, related product/service will affect your demand for the original product/service. There are two main types of related products: substitutes and complements.

Substitutes are products/services that can be used in place of each other to satisfy the same want. Examples of substitutes are iPods and other MP3 players for listening to music, or water and Gatorade for quenching thirst.
What happens to your demand for iPods when the price of other MP3 players falls drastically? You are not willing to pay as much for an iPod, as your smart choice now involves a much cheaper alternative. A fall in the price of a substitute causes a decrease in demand for the related product.

If the price of water skyrockets because of a drought, your willingness to pay for Gatorade increases. A rise in the price of a substitute causes an increased demand for the related product.

Complements are products/services that tend to be used together to satisfy the same want. iTunes and iPods are complementary products, as are hot dogs and hot dog buns, or cars and gasoline.

If song prices at the iTunes Store drop from 99 cents to 49 cents, that makes owning an iPod more attractive, and will increase your willingness to pay for an iPod. A fall in the price of a complement causes an increased demand for the related product because the cost of using both products together has decreased.

When gasoline prices rose significantly in 2008, gas-guzzling 8-cylinder SUVs became much more expensive to operate. The rise in gas prices caused a decrease in the demand for 8-cylinder SUVs. A rise in the price of a complement causes a decreased demand for the related product because the cost of using both products together has increased.

Income If you now had a million dollars, that would have a large impact on your demand for products/services. Demand reflects your willingness and ability to pay. With more money, or more income, you are more able (and still willing) to pay for things and not worry about it. But not always.

Take your demand for iPods from Figure 2.3, before any advertising (columns 1 and 3). If your income increased, the impact on your willingness and ability to pay would be similar to the impact of an increase in preferences (column 2). At each quantity, you are still willing and now able to pay more, so the increase in income causes an increase in demand. The intensity of your wants doesn’t change with a change in income, but what you have to give up in other products/services falls. With more income, you can spend more on an iPod and still have lots of extra cash to buy other things. Higher income lowers your real opportunity cost of spending. There is more “get” and less “give up.”

If unfortunately your income falls, so does your ability to pay, and your demand for iPods would decrease.

Economists call products like iPods normal goods — products/services that you buy more of when your income increases. For a normal good, an increase in income causes an increase in demand, and a decrease in income causes a decrease in demand.

But not all products are normal goods. Can you think of products/services you buy now as a poor student that you will buy less of when your income goes up? If you have been living on Kraft Dinner, you may never want to eat it again once you can afford real food. And what about those endless bus rides? If you could afford a car, what would happen to your demand for public transit?

Economists call these products/services, where an increase in income causes a decrease in demand, inferior goods — products/services that you buy less of when your income increases. Similarly, a decrease in income causes an increase in demand for inferior goods.
A fall in expected future price causes a decrease in demand today (bargain in future). A rise in expected future price causes an increase in demand today (bargain today).

As part of understanding their markets, businesses care about the distinction between normal and inferior goods. If incomes are rising and your business sells a normal good, the increase in demand will increase sales. But if you sell an inferior good, prepare for a possible drop in sales and reduce inventory so you don’t get stuck with unsold goods. The demand for inferior goods is more likely to increase during a downturn in the economy, where unemployed people economize on their food budget and buy more Kraft Dinner and Hamburger Helper.

**Expected Future Prices**

Smart choices depend not only on prices and incomes today, but also on our expectation of future prices. Consumers choose between substitutes, and one of many possible substitutions is a purchase tomorrow for a purchase today. We do this all the time with gasoline. If it’s the weekend and you decide to wait until mid-week to buy gas because you expect the price to fall, that decreases your demand for gasoline today. Likewise, if you are expecting prices to rise, you fill up now, increasing your demand for gasoline today. Notice that your decision is not determined by the current price (that would be a quantity demanded decision), but only by whether you expect the current price (whatever it may be) to fall or rise in the future.

An expected future price fall causes a decrease in demand today. An expected future price rise causes an increase in demand today.

**Number of Consumers**

So far, for all the factors that change demand, the explanations are the same for a single individual as they are for the group of all consumers whose combined willingness and ability to pay make up market demand. For any quantity demanded, we examine how a change in each factor affects the price the consumer is willing and able to pay. Each such change in demand changes marginal benefit and moves the margin. For the fifth factor, the number of consumers, the explanation makes more sense if we reverse the story. Start with any price, and examine how a change in consumer numbers affects quantity demanded. For each price, if the number of consumers increases, we need to add together all the quantities demanded by all consumers at that price.

Let’s take our earlier table of the market demand for water, and add a third column showing the quantity demanded after many new households move into the city and start using water. Take a look at Figure 2.4.
Not surprisingly with additional households (last column), at any price (first column) the quantity demanded is greater than it was originally (middle column). The increased number of consumers causes an increase in demand, just as an increase in preferences or an increase in income (for normal goods) causes an increase in demand. A decrease in the number of consumers causes a decrease in demand, just as a decrease in the price of a substitute product/service or a decrease in expected future prices causes a decrease in demand.

Any increase (or decrease) in demand can be described in alternative ways. For the four previous factors, the description for an increase in demand is:

- At any given quantity demanded, consumers are willing and able to pay a higher price.
- At any given price, consumers plan to buy a larger quantity.

For an increase in demand, these two alternative descriptions of the connection between price and quantity demanded are summarized in Figure 2.5. Depending on the economic event you are trying to make sense of, sometimes you will use one description, and sometimes the other.

### Figure 2.4 Market Demand for Water with More Households

<table>
<thead>
<tr>
<th>Price (cubic metre)</th>
<th>Quantity Demanded (000's of cubic metres/month)</th>
<th>Quantity Demanded with More Households (000's of cubic metres/month)</th>
</tr>
</thead>
<tbody>
<tr>
<td>$1.00</td>
<td>5</td>
<td>10</td>
</tr>
<tr>
<td>$1.50</td>
<td>4</td>
<td>8</td>
</tr>
<tr>
<td>$2.00</td>
<td>3</td>
<td>6</td>
</tr>
<tr>
<td>$2.50</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>$3.00</td>
<td>1</td>
<td>2</td>
</tr>
</tbody>
</table>

### Saving the Law of Demand

You have learned to distinguish between a change in quantity demanded (caused by a change in the price of the product) and a change in demand (caused by changes in preferences, prices of related products, income, expected future prices, and/or number of consumers). Can we now explain why, when gasoline prices increased from $0.99 per litre to $1.36 per litre between 2006 and 2008, the quantity of gasoline motorists bought actually increased? Can we save the law of demand?

According to the law of demand, if the price of a product rises, the quantity demanded of the product decreases (as long as other factors besides price do not change). The rise in gas prices alone would have caused a decrease in quantity demanded, but other things also changed.
While a complete explanation is more complex (involving supply factors from Chapter 3 as well as demand), a major change was the increased number of drivers and cars on the road. This increase in the number of consumers increased demand for gasoline. The impact of the increase in demand outweighed the impact of the decrease in quantity demanded.

To conclusively explain whether the witch’s curse or the arsenic killed the poor young man, you need a controlled experiment. And without the economist’s equivalent of a controlled experiment — the mental distinction between quantity demanded and demand — you never would have been able to explain what happened in the gasoline market.

Figure 2.6 is a good study device for reviewing the difference between the law of demand (focused on quantity demanded) and the factors that change demand.

**Figure 2.6  Law of Demand and Changes in Demand**

<table>
<thead>
<tr>
<th>The Law of Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decreases if:</strong></td>
</tr>
<tr>
<td>■ price of the product/service rises</td>
</tr>
<tr>
<td><strong>Increases if:</strong></td>
</tr>
<tr>
<td>■ price of the product/service falls</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Changes in Demand</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Decreases if:</strong></td>
</tr>
<tr>
<td>■ preferences decrease</td>
</tr>
<tr>
<td>■ price of a substitute falls</td>
</tr>
<tr>
<td>■ price of a complement rises</td>
</tr>
<tr>
<td>■ income decreases (normal good)</td>
</tr>
<tr>
<td>■ income increases (inferior good)</td>
</tr>
<tr>
<td>■ expected future price falls</td>
</tr>
<tr>
<td>■ number of customers decreases</td>
</tr>
<tr>
<td><strong>Increases if:</strong></td>
</tr>
<tr>
<td>■ preferences increase</td>
</tr>
<tr>
<td>■ price of a substitute rises</td>
</tr>
<tr>
<td>■ price of a complement falls</td>
</tr>
<tr>
<td>■ income increases (normal good)</td>
</tr>
<tr>
<td>■ income decreases (inferior good)</td>
</tr>
<tr>
<td>■ expected future price rises</td>
</tr>
<tr>
<td>■ number of customers increases</td>
</tr>
</tbody>
</table>

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1. Explain the difference between a change in quantity demanded and a change in demand. Distinguish the five factors that can change demand.

2. Roses sell for about $40 a bouquet most of the year, and worldwide sales are 6 million bouquets per month. Every February, the price of roses doubles to $80 a bouquet, but the quantity of roses demanded and sold also increases, to 24 million bouquets per month. The cost of producing roses doesn’t change throughout the year. Can you explain what else is going on that saves the law of demand?

3. There are some “status goods,” like Rolex watches, that people want to own because they are expensive. In contradiction to the law of demand, if Rolex watches were less expensive, few “status seeking” consumers would demand them. Is there any way to reconcile these products/services with the law of demand? You might think about what it is that consumers are buying — watches or status? And how does the existence of cheap “knock-off” imitations of Rolex watches fit with the law of demand?
2.5 Just How Badly Do You Want It?  
Price Elasticity of Demand and Total Revenue

Don’t you love a good sale — 50 percent off, 70 percent off? Most consumers do. No matter how much you are willing and able to pay for a product/service, it’s always a treat to pay less, which leaves you with cash to buy more of anything you want.

But do businesses love a good sale? Profit-seeking businesses would rather charge higher prices for what they sell. But to get consumers to buy, businesses must pick price points that match the market’s (all consumers’) willingness and ability to pay. Higher prices might not always be best for business. Why do businesses have 70-percent-off sales, voluntarily lowering prices and bringing in less per unit?

I’m sure you have heard the answer to this question: “They’ll make it up on volume!” Lower prices mean lower profit margins per unit, but a greater quantity sold.

How do businesses decide whether they will be better off selling to consumers at a higher price or a lower price?

We know from the law of demand that (all other things unchanged) a rise in price causes a decrease in quantity demanded, and a fall in price (sale’s on!) causes an increase in quantity demanded (more volume). A smart business pricing decision depends on how much quantity demanded changes when price changes. What changes more, the price or the quantity? This responsiveness of quantity demanded to a change in price is related to just how badly consumers want the product/service.

The tool that businesses use every day to measure consumer responsiveness and make pricing decisions is what economists call the price elasticity of demand (say that three times quickly for a tongue twister). This section will help you make sense of that tool, which businesses mercifully abbreviate to elasticity. Elasticity measures by how much quantity demanded responds to a change in price.
Measuring Your Responsiveness

Elasticity is all about responsiveness. When you pull on an elastic, by how much does it stretch or respond? When the price of a product changes, price elasticity of demand measures by how much quantity demanded responds.

If you have diabetes, you have a high willingness to pay for insulin. What happens to the quantity of insulin demanded when the price rises? Not much decrease. If the price rises enough, quantity demanded may decrease slightly as diabetics who are poorest perhaps try to get by with a little less per dose. But for the market demand for insulin, there is very little response of quantity demanded to a rise in price. Economists describe the demand for insulin as inelastic: There is a small response (or "give") in the quantity demanded when price rises.

What about the market demand for yellow tennis balls? If the price of yellow tennis balls rises, what happens? Most players consider green or orange tennis balls to be identical substitutes, and aren’t willing to pay a premium for yellow. Players switch to non-yellow balls, so the quantity demanded of yellow tennis balls decreases drastically. There is a large response of quantity demanded to a rise in price. The demand for yellow tennis balls is called elastic: there is a large response in the quantity demanded when price rises.

Businesses use a simple formula to calculate elasticity.

\[
\text{Price elasticity of demand} = \frac{\text{Percentage change in quantity demanded}}{\text{Percentage change in price}}
\]

The formula assumes that all of the other five factors that can affect demand are unchanged, so this is a controlled measurement of just the relationship (in the law of demand) between quantity demanded and price.

Let’s substitute some numbers into the formula for our examples.

For insulin, if a 10-percent rise in price causes a 2-percent decrease in quantity demanded, the calculation is

\[
\text{Price elasticity of demand} = \frac{2 \text{ percent}}{10 \text{ percent}} = 0.2
\]

Because the percentage change in quantity in the numerator (2) is less than the percentage change in price in the denominator (10), the value for elasticity is less than 1. Any elasticity value less than 1 is considered to be inelastic.

(If you are thinking that my math isn’t quite right, good for you! Technically, the correct answer would be – 0.2. However, even an economist will ignore the negative sign in calculating price elasticity of demand. You will be pleased to know that economists don’t like negative numbers any more than you do.)

For yellow tennis balls, if a 10-percent rise in price causes a 50-percent decrease in quantity demanded, the calculation is

\[
\text{Price elasticity of demand} = \frac{50 \text{ percent}}{10 \text{ percent}} = 5
\]
Because the percentage change in quantity in the numerator (50) is greater than the percentage change in price in the denominator (10), the value for elasticity is greater than 1. Any elasticity value greater than 1 is elastic. So when the value for elasticity is less than 1, demand is inelastic. Are you wondering what demand is called when elasticity is exactly equal to 1? No, I didn’t think so. But for the sake of completeness, here’s your answer: When elasticity equals 1, demand is “unit elastic.” The percentage change in quantity equals the percentage change in price.

One other way to think about the different values for elasticity is willingness to shop elsewhere if you don’t get a low price.

If the price rises for products/services with:

- inelastic demands, consumers have a low willingness to shop elsewhere.
- elastic demands, consumers have a high willingness to shop elsewhere.

### Why Are You (Un)Responsive?

#### Factors Determining Elasticity

Three main factors influence price elasticity of demand, or “willingness to shop elsewhere if you don’t get a low price”: the availability of substitutes, time to adjust, and proportion of income spent on a product/service. Let’s look at each.

**Available Substitutes** The law of demand says that when something becomes more expensive, people economize on its use and look for substitutes. The more substitutes there are, the easier it is to switch away from a product/service whose price rises, and the more elastic is demand. Yellow tennis balls have excellent substitutes, so the demand for tennis balls is elastic. Insulin has almost no substitutes, so the demand for insulin is inelastic.

**Time to Adjust to Price Rise** When prices rise, it often takes time to adjust and to find substitutes. If gasoline prices rise and you have to drive to work, you can’t do much initially to decrease your quantity of gasoline demanded — you can cut back on pleasure driving and errands. With more time, you could arrange a car pool, and with much more time, you might buy a more fuel-efficient car or move closer to work. Time allows consumers to find substitutes. The longer the time to adjust to a price rise, the more elastic demand becomes.

**Proportion of Income Spent on a Product/Service** Suppose the price of salt doubles from $1 per kilo to $2 per kilo. By how much will you reduce your quantity demanded of salt? Not much. What if the price of a car doubles from $20,000 to $40,000? The quantity demanded of cars will collapse. The key difference between the examples is in the proportion of income spent on the product. We spend a tiny fraction of our income on salt, so a big price rise doesn’t increase our total expenditure much. But buying a car is often the largest purchase you will make, other than buying a house: A big price rise makes it unaffordable. The greater the proportion of income spent on a product, the greater the elasticity of demand.
When Are Price Cuts Smart Business?
Elasticity and Total Revenue

If you hold a 70-percent-off sale, consumers will be happy, but will your business be better off? Whether a business will be better off from raising prices or cutting prices depends on the elasticity of demand for its product/service.

“Better off,” in this chapter, means the business will have higher total revenue. **Total revenue** is all of the money received from sales, and is equal to the price per unit ($P$) multiplied by the quantity sold ($Q$).

$$\text{Total revenue} = P \times Q$$

A wonderfully simple relationship exists between elasticity and total revenue. When a business cuts prices,

- if demand for its product/service is *elastic*, the percentage increase in quantity is greater than the percentage decrease in price, so total revenue ($P \times Q$) *increases*.
- if demand for its product/service is *inelastic*, the percentage increase in quantity is less than the percentage decrease in price, so total revenue ($P \times Q$) *decreases*.

Figure 2.7 summarizes the relationship between elasticity and total revenue for a price cut.

<table>
<thead>
<tr>
<th>When Demand Is:</th>
<th>Price Cut Causes:</th>
</tr>
</thead>
<tbody>
<tr>
<td>Elastic (&gt; 1)</td>
<td>% change in $Q &gt; $ change in $P$</td>
</tr>
<tr>
<td>Inelastic (&lt; 1)</td>
<td>% change in $Q &lt; $ change in $P$</td>
</tr>
</tbody>
</table>

For the sake of completeness, when demand is unit elastic (= 1), the percentage increase in quantity equals the percentage decrease in price, so total revenue remains the same.

**Price Cuts Are Smart When Facing Elastic Demand** So a price cut is a smart decision when your business faces elastic demand. You receive a lower price on each unit sold, but you do make it up on volume! The percentage increase in quantity outweighs the percentage decrease in price, so total revenue increases.

If you are selling yellow tennis balls, consumers’ demand for your product is elastic, which means that if they don’t get a low price, they are very willing and able to shop elsewhere because good substitutes are available. When you cut the price of yellow tennis balls even a little, you attract all of the bargain-hunters who are currently using green or orange tennis balls. Your total revenue increases because the large increase in quantity outweighs the small cut in price.
Price Rises Are Smart When Facing Inelastic Demand The smart decision when your business faces inelastic demand is to raise prices. You receive a higher price on each unit sold, and while you lose some sales, the percentage increase in price is greater than the percentage decrease in quantity, so total revenue increases.

If you are selling insulin, consumers’ demand is inelastic, which means that they will not easily shop elsewhere because there are no good substitutes. When you raise the price of insulin, you don’t lose many customers. Your total revenue increases because the increase in price outweighs the small decrease in quantity.

Smart Pricing Decisions Depend on Elasticity of Demand Price elasticity of demand is important for any business pricing decision, even the price you get in haggling with a car dealer. Most consumers hate haggling over price because the dealer has better information about costs and knows how low he is willing to go on price. Your best strategy as a buyer is to try to convince the dealer that you will walk out if you don’t get a low price, that you don’t like this particular car that much and are considering alternative models from other manufacturers, or that you are not very wealthy. In other words, you want the dealer to believe that your demand is elastic, that you are willing to shop elsewhere if you don’t get a low price because good substitutes are available. If you convince the dealer, then his best pricing decision is to offer you a very low price, because he believes that if he doesn’t he will lose the sale entirely.

On the other hand, if the dealer thinks that you are not likely to walk out, that you love this particular car much more than any alternatives, or that you are wealthy and not price conscious, he takes these as signals that your demand is inelastic. His best pricing decision, because he believes this is a pretty sure sale, is to try to convince you to take expensive options that will actually increase the price above the sticker price.

All businesses have to live by the law of demand — a rise in price causes a decrease in quantity demanded. Smart businesses choose their price points depending on how much consumers’ quantity demanded responds to a change in price — in other words, on price elasticity of demand.

1. Explain the relationship between price and quantity demanded for inelastic demand and for elastic demand.
2. If a jewellery store cuts its prices by 20 percent, and finds that its quantity sold increases by 40 percent, calculate its price elasticity of demand. Is it elastic or inelastic?
3. Concession stands at movie theatres charge high prices for popcorn, drinks, and other refreshments. This pricing strategy increases total revenue. What does that imply about the price elasticity of demand for refreshments in movie theatres? What theatre policy helps make this demand elastic or inelastic?
CHAPTER SUMMARY

2.1 PUT YOUR MONEY WHERE YOUR MOUTH IS: WEIGHING BENEFITS, COSTS, AND SUBSTITUTES

Your willingness to buy a product/service depends on your ability to pay, comparative benefits and costs, and the availability of substitutes.

- Preferences — your wants and their intensities.
- Demand — consumers’ willingness and ability to pay for a particular product/service.
- For any choice, what you are willing to pay or give up depends on the cost and availability of substitutes.

2.2 LIVING ON THE EDGE: SMART CHOICES ARE MARGINAL CHOICES

Key 2 for smart choices states, “Count only additional benefits and additional costs.” Additional benefit means marginal benefit — not total benefit — and marginal benefit changes with circumstances.

- Marginal benefit — additional benefit from a choice, and changes with circumstances.
- Marginal benefit explains the diamond/water paradox. Why do diamonds cost more than water, when water is far more valuable for survival? Willingness to pay depends on marginal benefit, not total benefit. Because water is abundant, marginal benefit is low. Because diamonds are scarce, marginal benefit is high.

2.3 WHEN THE PRICE ISN’T RIGHT: THE LAW OF DEMAND

If the price of a product/service rises, the quantity demanded decreases. Consumers economize on products/services that become more expensive by switching to substitutes.

- Quantity demanded — amount you actually plan to buy at a given price.
- Market demand — sum of demands of all individuals willing and able to buy a particular product/service.
• **Law of demand** — if the price of a product/service rises, quantity demanded decreases.

### 2.4 MOVING THE MARGINS: WHAT CAN CHANGE DEMAND?

*Quantity demanded is changed only by a change in price. Demand is changed by all other influences on consumer choice.*

- Demand is a catch-all term summarizing all possible influences on consumers’ willingness and ability to pay for a particular product/service.
  - **Increase in demand** — increase in consumers’ willingness and ability to pay.
  - **Decrease in demand** — decrease in consumers’ willingness and ability to pay.

- Demand changes with changes in preferences, prices of related goods, income, expected future price, and number of consumers. For example, demand increases with:
  - increase in preferences.
  - rise in price of a **substitute** — products/services used in place of each other to satisfy the same want.
  - fall in price of a **complement** — products/services used together to satisfy the same want.
  - increase in income for **normal goods** — products/services you buy more of when your income increases.
  - decrease in income for **inferior goods** — products/services you buy less of when your income increases.
  - rise in expected future prices.
  - increase in number of consumers.

### 2.5 JUST HOW BADLY DO YOU WANT IT? PRICE ELASTICITY OF DEMAND AND TOTAL REVENUE

Elasticity measures how responsive quantity demanded is to a change in price, and determines business pricing strategies to earn maximum total revenue. To earn maximum total revenue, businesses cut prices when demand is elastic and raise prices when demand is inelastic.

- The tool that businesses use to measure consumer responsiveness when making pricing decisions is **elasticity** (or **price elasticity of demand**), which measures by how much quantity demanded responds to a change in price.

- The formula is:
  \[
  \text{Price elasticity of demand} = \frac{\% \text{ change in quantity demanded}}{\% \text{ change in price}}
  \]

- **Inelastic** — For inelastic demand, small response in quantity demanded when price rises.
  - Example: Demand for insulin by a diabetic.
  - Value for formula is less than one.
  - Low willingness to shop elsewhere.
• **Elastic** — For elastic demand, large response in quantity demanded when price rises.
  – Example: Demand for yellow tennis balls.
  – Value for formula is greater than one.
  – High willingness to shop elsewhere.
• The price elasticity of demand of a product/service is influenced by:
  – substitutes — more substitute goods mean more elastic demand.
  – time to adjust — longer time to adjust means more elastic demand.
  – proportion of income spent on a product/service — greater proportion of income spent means more elastic demand.
• **Total revenue** — (all money a business receives from sales) = price per unit \( (P) \) multiplied by quantity sold \( (Q) \).
  – Price rises are the smart choice facing inelastic demand, and increase total revenue.
  – Price cuts are the smart choice facing elastic demand, and increase total revenue.

**TRUE/FALSE**

Circle the correct answer.

2.1 **WEIGHING BENEFITS, COSTS, AND SUBSTITUTES**
1. Demand is the same as wants.  
   True  False
2. Your willingness to pay for a product depends on what substitutes are available, and what they cost.  
   True  False

2.2 **SMART CHOICES ARE MARGINAL CHOICES**
3. Marginal cost is the same as additional cost.  
   True  False
4. The flat fee charged at an all-you-can-eat restaurant should not influence how much food you eat once you are seated.  
   True  False
5. Marginal benefit is always equal to average benefit.  
   True  False

2.3 **THE LAW OF DEMAND**
6. Quantity demanded is the same as demand.  
   True  False
7. If the price of a product/service changes, that affects quantity demanded.  
   True  False

2.4 **WHAT CAN CHANGE DEMAND?**
8. If your willingness to pay decreases, there will be a decrease in demand.  
   True  False
9. If your ability to pay decreases, there will be an increase in demand.

10. Throughout the month of December, the quantity of video game consoles purchased often increases even as the price rises. This violates the law of demand.

2.5 PRICE ELASTICITY OF DEMAND AND TOTAL REVENUE

11. When customers react quickly to a price change, this product has high elasticity of demand.

12. Any elasticity value less than 1 is considered to be inelastic.

13. The fewer substitutes available, the greater the elasticity of demand.

14. When negotiating a price on an expensive purchase, you want the dealer to believe that your demand is elastic — that is, that you are willing to shop elsewhere if you don't get a low price because good substitutes are available.

15. Total revenue \((P \times Q)\) decreases when a business lowers the price of an inelastic good.

MULTIPLE CHOICE

Circle the correct answer.

2.1 WEIGHING BENEFITS, COSTS, AND SUBSTITUTES

1. Economists describe the list of your wants and their intensities as
   A) demand.
   B) supply.
   C) benefit.
   D) preferences.

2. Costs are
   A) worth money.
   B) whatever we are willing to give up.
   C) the answer to the question “What do we want?”
   D) whatever we are willing to get.
2.2 SMART CHOICES ARE MARGINAL CHOICES

3. All-you-can-eat buffet restaurants charge a fixed fee for eating. With each plate that Anna consumes, she experiences
   A) decreasing marginal costs to eating.
   B) increasing marginal costs to eating.
   C) decreasing marginal benefits to eating.
   D) increasing marginal benefits to eating.

4. Thinking like economists, a dating couple should break up when the
   A) total benefits of dating are greater than the total costs of dating.
   B) total costs of dating are greater than the total benefits of dating.
   C) additional benefits of dating are greater than the additional costs of dating.
   D) additional costs of dating are greater than the additional benefits of dating.

5. Peter would like to have two cars, one for everyday and the other for special occasions. However, he has only $10 000, so he buys only one car. His quantity demanded of cars is
   A) 1.
   B) 2.
   C) 20 000.
   D) 40 000.

2.3 THE LAW OF DEMAND

6. When the price of a product rises,
   A) consumers look for more expensive substitutes.
   B) quantity demanded increases.
   C) consumers look for cheaper substitutes.
   D) consumers use more of the product.

7. If home owners were charged for garbage collection on the basis of the number of garbage bags used, this would result in a(n)
   A) increase in demand.
   B) decrease in demand.
   C) increase in quantity demanded.
   D) decrease in quantity demanded.
2.4 WHAT CAN CHANGE DEMAND?

8. What of the following is most likely to be an inferior good?
   A) Fast food
   B) Antique furniture
   C) School bags
   D) Textbooks

9. Demand
   A) increases with a rise in price.
   B) is the same as quantity demanded.
   C) changes with income.
   D) decreases with a rise in price.

10. If the price of cars went up, the demand for tires would
    A) increase.
    B) decrease.
    C) stay the same.
    D) depend on the price of tires.

11. Which of the following could cause an increase in demand for a product?
    A) Increase in income
    B) Decrease in income
    C) Increase in the price of a substitute
    D) All of the above

12. If Kraft Dinner is an inferior good, then a rise in the price of Kraft Dinner will cause a(n)
    A) decrease in demand for Kraft Dinner.
    B) increase in demand for Kraft Dinner.
    C) increase in the quantity demanded of Kraft Dinner.
    D) decrease in the quantity demanded of Kraft Dinner.

2.5 PRICE ELASTICITY OF DEMAND AND TOTAL REVENUE

13. If a business lowers prices, total revenue increases if price elasticity of demand is
    A) less than 1.
    B) greater than 1.
    C) equal to 1.
    D) equal to 0.
14. The fact that butter and margarine are close substitutes makes
   A) demand for butter more elastic.
   B) demand for butter more inelastic.
   C) butter an inferior good.
   D) margarine an inferior good.

15. After visiting a number of restaurants in Paris where fee-for-service toilets are commonplace, a Canadian restaurant owner decides to charge customers a fee for bathroom use. How will bathroom use inside the owner’s restaurant most likely change?
   A) Quantity demanded will decrease; total revenue will fall.
   B) Quantity demanded will increase; total revenue will rise.
   C) Quantity demanded will decrease; total revenue will rise.
   D) Quantity demanded will increase; total revenue will fall.

**SHORT ANSWER**

Write a short answer to each question. Your answer may be in point form.

1. What is a smart choice?
2. If you don’t have enough money to buy a product, can you still have a demand for it?
3. Consider the diamond/water paradox — diamonds are very expensive but not required for life, but water, a necessity for life, is relatively inexpensive. What if you are Bill Gates walking through the desert alone with pockets full of diamonds? How will this affect your marginal benefits?
4. Advertising is designed to increase your preference for a product/service. Provide an example of a slogan that has changed or shaped your preferences.
5. Suppose your community council is considering the idea of returning to a flat monthly rate payment scheme for water usage. Explain what will happen to the demand for the following products.
   A) Water
   B) Orange juice
   C) Soap
   D) Rubber ducky bath toys
6. Identify which factor (preferences, prices of related products/services, income, expected future prices, or the number of consumers) will cause a *change in demand* in the following circumstances:
   A) The impact of building a new apartment on the demand for groceries at the local store
   B) The impact of downloading music on the demand for CDs
   C) The impact on the demand for cars of delaying buying expensive items in anticipation of a future decrease in the GST

7. Young drivers account for more than 35 percent of all drivers involved in fatal accidents, despite representing only 20 percent of all licensed drivers. Often, alcohol is involved. Explain how each of the following policies would affect the demand for alcohol.
   A) Increasing the minimum age for drinking.
   B) Raising the price (through higher taxes) of alcohol.
   C) Using advertising campaigns to discourage alcohol usage.

8. State whether demand for the following products/services is elastic or inelastic.
   A) Pimple medication
   B) Pencils
   C) Clothes
   D) Parasuco jeans
   E) Newspaper
   F) Toilet paper

9. Evidence suggests that babies are a *normal good* for lower income earners and an *inferior good* for higher income earners. Explain what this means by using the definitions of “normal” and “inferior” goods.

10. In the women’s clothing market, which is likely to be more inelastic, demand for the latest fashions or demand for clothing in general? Use your answer to explain why when clothing stores have sales they usually exclude the latest arrivals.