

LEARN

Marginal analysis helps us make smarter choices by comparing the **additional benefits and additional costs** of each decision. Instead of asking “Is this good or bad?” we ask “**Is one more worth it?**”, which is the key to making efficient everyday and business decisions like these:

“Should I hit the snooze button one more time?”

“Should I run one more mile?”

“Should I watch one more show?”

“Should I let the pitcher on the baseball team pitch to one more batter?”

INSTRUCTIONS: Read the story below and identify whether Jimmy made good economic decisions while ordering his food.

Jimmy went to a local sandwich shop and ordered an Italian Beef sandwich. When the cashier asked if he wanted a 6-inch or 9-inch, Jimmy chose the 9-inch sandwich. The 9-inch sandwich cost \$10.39 while the 6-inch sandwich cost \$8.29. Next, the cashier asked if he wanted peppers and onions added for \$0.99. Jimmy remembered that the last time he paid for them, he only got a couple slices and barely noticed them on the sandwich, so he declined.

Jimmy then decided to order french fries. The cashier asked what size and his dad told him to get a large fry so they could share the fries. The small fry was 3 ounces for \$2.99 and the large fry was 6 ounces for \$3.89. The cashier asked if he wanted cheese sauce for \$1.19, but Jimmy since he doesn't like dipping his fries in anything except ketchup. Finally, instead of purchasing a \$2.99 drink, Jimmy just asked for a free cup of water.

After enjoying a nice meal, Jimmy and his dad stopped on the way home for some ice cream. Jimmy ordered Chocolate Brownie Extreme in a cup. The worker asked him how many scoops he wanted. The ice cream looked good so he ordered two scoops. One scoop of ice cream was \$3.99 and two scoops was \$4.99.

1. The 6-inch sandwich costs \$8.29, while the 9-inch costs \$10.39. Based on Jimmy's choice of the 9-inch, what can we infer?
 - a. Jimmy valued the additional 3 inches of sandwich at less than \$2.10.
 - b. Jimmy valued the additional 3 inches of sandwich at more than \$2.10.
 - c. Jimmy did not consider the marginal value of the extra sandwich.
 - d. Jimmy made a poor economic decision.
2. Why did Jimmy decline the \$0.99 peppers and onions?
 - a. The marginal benefit of the peppers and onions to his sandwich was greater than \$0.99.
 - b. The marginal benefit of the peppers and onions to his sandwich was less than \$0.99.
 - c. The marginal cost was negative.
 - d. Jimmy didn't have enough money.

3. The small fry was 3 ounces for \$2.99, while the large fry was 6 ounces for \$3.89. Why did Jimmy choose the large fry?
 - a. The marginal cost of the extra 3 ounces was \$0.90, and it was valued at more than \$0.90.
 - b. The marginal cost of the extra 3 ounces was \$3.89, and Jimmy valued it at less than that.
 - c. The small fry was overpriced compared to the large.
 - d. Even though he and his dad would likely only eat 3 ounces of fries in total, the per ounce price was cheaper to purchase the large fry.

4. One scoop of ice cream costs \$3.99, while two scoops cost \$4.99. What was the marginal cost of the second scoop, and what does Jimmy's choice suggest?
 - a. The marginal cost of the second scoop was \$4.99; Jimmy valued it at less than that.
 - b. The marginal cost of the second scoop was \$1.00; Jimmy valued it at more than \$1.00.
 - c. The marginal cost of the second scoop was \$3.99; Jimmy valued it at exactly that.
 - d. The marginal cost of the second scoop was \$1.00; Jimmy valued it at less than \$1.00.

MB=MC

Economic decisions should be made up to the point where marginal benefit equals marginal cost, because that is where total net gain is maximized.

INSTRUCTIONS: Use the information provided and marginal analysis to answer each of the following questions.

Uber Rides Provided by Jackson

Quantity of Uber Rides	Total Revenue	Total Cost	Marginal Revenue (MR)	Marginal Cost (MC)
1	\$25	\$10		
2	\$48	\$22		
3	\$69	\$36		
4	\$87	\$52		
5	\$103	\$70		
6	\$116	\$90		
7	\$126	\$112		
8	\$133	\$136		

5. Based on the table, what is the profit-maximizing number of Uber rides?
 - a. 3 rides
 - b. 4 rides
 - c. 5 rides
 - d. 6 rides

6. What is the net benefit (profit) when 4 Uber rides are provided by Jackson?
- \$31
 - \$35
 - \$39
 - \$41
7. Why does Jackson stop providing rides after the 4th ride?
- His total benefit falls below total cost.
 - The cost of providing an additional ride rises above the benefit of providing the ride.
 - Total cost decreases at a decreasing rate.
 - Marginal benefit is still greater than marginal cost.
-

A student is considering how many slices of pizza to buy at lunch. Each slice costs \$2. The student's marginal benefit (satisfaction measured in dollars) from each additional slice is:

1st slice: \$5
2nd slice: \$3
3rd slice: \$2
4th slice: \$1

8. At what point does the student maximize net benefit?

9. What is the total benefit of 3 slices? What is the total cost?

10. Should the student buy the 4th slice? Why or why not?

A student loves going to the movies, which cost \$10 per ticket. The marginal benefit of each additional movie declines as follows:

1st movie: \$18
2nd movie: \$14
3rd movie: \$10
4th movie: \$6
5th movie: \$2

11. How many movies should the student watch to maximize net benefit?

12. Explain why the student does not choose to watch 5 movies, even though they provide some benefit.

A sandwich shop earns additional total revenue by hiring workers. Wages per worker are \$100/day. The marginal revenue product (MRP) of each additional worker is:

1st worker: \$180
2nd worker: \$140
3rd worker: \$100
4th worker: \$70
5th worker: \$30

13. How many workers should the shop hire to maximize profit?

14. What happens if the shop hires the 4th worker?

PRACTICE

INSTRUCTIONS: Read the scenario and answer the questions that follow.

1. A small clothing company produces T-shirts. The following table shows total revenue (TR) and total cost (TC) for different quantities. Based on marginal analysis, what is the profit-maximizing number of T-shirts to produce?

Quantity of T-shirts	Total Revenue	Total Cost	Marginal Revenue (MR)	Marginal Cost (MC)
0	\$0	\$50		
1	\$30	\$70		
2	\$60	\$85		
3	\$90	\$105		
4	\$120	\$140		

- a. 1
 - b. 2
 - c. 3
 - d. 4
2. A student decides how many hours to study economics. The marginal benefit (MB) is measured in additional exam points expected, and the marginal cost (MC) is measured in points lost from reduced sleep and stress. According to marginal analysis, how many hours should the student study?

Hours of Study	Marginal Benefits (Points)	Marginal Cost (Points)
1	15	2
2	12	5
3	10	8
4	6	12

- a. 1
- b. 2
- c. 3
- d. 4

3. A factory is considering how much pollution to clean up. The table shows the marginal benefit (MB) to society and the marginal cost (MC) to the firm of reducing each unit of pollution. How many units of pollution should the factory reduce?

Units of Pollution Reduced	Marginal Benefit	Marginal Cost
1	\$100	\$20
2	\$80	\$40
3	\$60	\$60
4	\$40	\$80
5	\$20	\$100

- a. 1
 - b. 2
 - c. 3
 - d. 4
4. A baseball fan is deciding how many games to attend in a season. The marginal benefit (MB) is measured in “units of enjoyment” and the marginal cost (MC) is measured in dollars spent. Based on marginal analysis, how many games should the fan attend?

Number of Games	Total Benefit	Total Cost	Marginal Revenue (MR)	Marginal Cost (MC)
1	\$50	\$20		
2	\$90	\$50		
3	\$120	\$90		
4	\$140	\$140		

- a. 1
- b. 2
- c. 3
- d. 4

5. A pizza shop considers how many pizzas to make during lunch. The marginal revenue (MR) and marginal cost (MC) are listed below. How many pizzas should the shop produce?

Pizzas	Marginal Revenue (MR)	Marginal Cost (MC)
1	\$12	\$5
2	\$10	\$8
3	\$8	\$9
4	\$6	\$11

- a. 1
- b. 2
- c. 3
- d. 4

Hours spent studying Economics	Score on Test	Total Benefits (Points)	Total Cost (Points)
0	1	0	0
50	2	10	5
100	3	20	10
150	4	30	15
200	5	31	20

6. Use the data in the table above to explain the optimal amount that should be spent studying Economics.

7. Explain how marginal analysis could be used to determine if a city should increase the speed limit on a road from 40mph to 45 mph.

8. Think about the last time you cleaned your room. At first, the benefit of picking things up was high (you could walk without tripping, find what you need, and your parents stopped bugging you). But eventually, the benefit of cleaning one more item or dusting the windowsill was pretty small compared to the time and effort it took. According to the table, what is the optimal number of minutes Gregory should spend cleaning his room?

Minutes Cleaning	Total Benefit (Value of Cleanliness)	Total Cost (Value of Time/Effort)
0	0	0
5	30	5
10	50	15
15	65	30
20	75	50
25	80	75
30	82	105

- a. 10 minutes
- b. 15 minutes
- c. 20 minutes
- d. 25 minutes

9. Suppose you have to move and there will be an open house tomorrow. The added cleanliness now has a higher benefit. According to the table and new situation, what is the optimal number of minutes Gregory should spend cleaning his room?

Minutes Cleaning	Total Benefit (Value of Cleanliness)	Total Cost (Value of Time/Effort)
0	0	0
5	45	5
10	80	15
15	105	30
20	125	50
25	143	75
30	155	105

- e. 10 minutes
- f. 15 minutes
- g. 20 minutes
- h. 25 minutes

10. A student is purchasing a new SUV and must decide which package to add. Each package includes the previous level's features plus extras. The table below shows the total cost of each package and the estimated total benefit (in \$ value to the buyer) of the features. Which package should the student choose?

Package	Total Cost	Total Benefit
Standard	\$1,600	\$1,500
Mid	\$3,200	\$3,000
High	\$5,200	\$4,500
Lux	\$6,800	\$6,500
Sasquatch	\$7,700	\$7,500

- i. Standard
- j. Mid
- k. High
- l. Lux
- m. Sasquatch

PROVE - ADVANCED PRACTICE QUESTIONS

Marginal analysis will find its way into most every unit of Economics. You will likely see multiple questions that require you to use marginal analysis.

1. A city considers reducing air pollution. The table shows the marginal benefit (MB) and marginal cost (MC) of reducing tons of pollution. At what level of pollution reduction is net benefit maximized?

Tons Reduced	Marginal Benefit (MB)	Marginal Cost (MC)
1	\$900	\$100
2	\$700	\$250
3	\$500	\$400
4	\$300	\$600
5	\$100	\$900

- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
2. A student's marginal benefit (MB) and marginal cost (MC) of studying economics are listed below. How many hours will the student study to maximize net benefit?

Hours	Marginal Benefit (MB)	Marginal Cost (MC)
1	50	10
2	40	20
3	30	30
4	20	40
5	10	50

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5

3. A pizza shop's total revenue (TR) and total cost (TC) are included in the table below. Using marginal analysis, how many pizzas should the shop produce to maximize net benefit (profit)?

Pizza Produced	Total Revenue (TR)	Total Cost (TC)
0	\$0	\$0
1	\$10	\$6
2	\$20	\$13
3	\$30	\$21
4	\$40	\$30
5	\$50	\$40

- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
4. A coffee shop hires workers to produce lattes. Each latte sells for \$4 in a perfectly competitive market. The wage rate for each worker is \$60 per day. The table below shows the total product (TP) of lattes produced by different numbers of workers. How many workers should the coffee shop hire to maximize profit?

Number of Workers	Total Product (Lattes)
0	0
1	20
2	50
3	75
4	95
5	110
6	120

- a. 2
- b. 3
- c. 4
- d. 5
- e. 6

5. A city removes snow, with MB and MC as seen in the table below. How many streets should be cleared?

Streets Cleared	Marginal Benefit (MB)	Marginal Cost (MC)
1	500	100
2	400	200
3	300	350
4	200	500
5	100	700

- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
6. A city is considering reducing the amount of pollution in a local river. The table below shows the total benefit and total cost of each level of pollution reduction. Based on the data, how many units of pollution reduction should the city undertake?

Units of Pollution Reduced	Total Benefit (TB)	Total Cost (TC)
0	\$0	\$0
1	\$100	\$20
2	\$180	\$60
3	\$240	\$120
4	\$280	\$200
5	\$300	\$300
6	\$310	\$420

- a. 2
- b. 3
- c. 4
- d. 5
- e. 6

7. If the marginal benefit of defense spending is falling and the marginal cost of raising taxes is rising, the efficient allocation occurs when:
- a. Total benefits = total costs
 - b. $MB = MC$
 - c. $MB > MC$
 - d. $MB < MC$
 - e. Government maximizes spending regardless of cost
8. A consumer's MB and MC of movies are displayed in the table below. How many movies will the consumer watch?

Movies	Marginal Benefit (MB)	Marginal Cost (MC)
1	30	5
2	25	10
3	20	20
4	15	30
5	10	40

- a. 1
 - b. 2
 - c. 3
 - d. 4
 - e. 5
9. If the marginal benefit of cleaning water decreases with each unit and the marginal cost increases, which of the following is true at the efficient level?
- a. $MB > MC$
 - b. $MB < MC$
 - c. $MB = MC$
 - d. Total Benefit < Total Cost
 - e. Society wants zero pollution

10. A landscaping business is deciding how many workers to hire for the upcoming week. The **total benefit (TB)** represents the value of the additional landscaping contracts completed, while the **total cost (TC)** represents wages paid to workers. What is the **profit-maximizing number of workers** the business should hire?

Workers Hired	Total Benefit (TB)	Total Cost (TC)
0	\$0	\$0
1	\$200	\$150
2	\$380	\$310
3	\$540	\$480
4	\$680	\$670
5	\$780	\$880

- a. 1
- b. 2
- c. 3
- d. 4
- e. 5



SCAN TO SEE THE CORRECT ANSWERS AND EXPLANATION

WONDER

Read [To Be A Happy Person, Understand Marginal Utility](#) independently. Then, respond to the following three questions. Be prepared to discuss your answers with a partner and the whole class in order to be exposed to a variety of perspectives.

1. Think about a food you really enjoy. How would the marginal utility of the first bite compare to the third or fourth serving, and how might that affect when you decide to stop eating?

2. Have you ever had to miss an event with friends or family because something else (like homework, sports, or work) ranked higher in your preferences at that time? How does marginal utility help explain your decision?

3. The article gives the example of a girl choosing Pinterest over dating, even though she likes the guy. How does this illustrate the concept of opportunity cost, and what does it reveal about how people prioritize their time and happiness?

ANSWER KEY

LEARN

Marginal analysis helps us make smarter choices by comparing the **additional benefits and additional costs** of each decision. Instead of asking “Is this good or bad?” we ask **“Is one more worth it?”**, which is the key to making efficient everyday and business decisions like these:

“Should I hit the snooze button one more time?”

“Should I run one more mile?”

“Should I watch one more show?”

“Should I let the pitcher on the baseball team pitch to one more batter?”

INSTRUCTIONS: Read the story below and identify whether Jimmy made good economic decisions while ordering his food.

Jimmy went to a local sandwich shop and ordered an Italian Beef sandwich. When the cashier asked if he wanted a 6-inch or 9-inch, Jimmy chose the 9-inch sandwich. The 9-inch sandwich cost \$10.39 while the 6-inch sandwich cost \$8.29. Next, the cashier asked if he wanted peppers and onions added for \$0.99. Jimmy remembered that the last time he paid for them, he only got a couple slices and barely noticed them on the sandwich, so he declined.

Jimmy then decided to order french fries. The cashier asked what size and his dad told him to get a large fry so they could share the fries. The small fry was 3 ounces for \$2.99 and the large fry was 6 ounces for \$3.89. The cashier asked if he wanted cheese sauce for \$1.19, but Jimmy since he doesn't like dipping his fries in anything except ketchup. Finally, instead of purchasing a \$2.99 drink, Jimmy just asked for a free cup of water.

After enjoying a nice meal, Jimmy and his dad stopped on the way home for some ice cream. Jimmy ordered Chocolate Brownie Extreme in a cup. The worker asked him how many scoops he wanted. The ice cream looked good so he ordered two scoops. One scoop of ice cream was \$3.99 and two scoops was \$4.99.

1. The 6-inch sandwich costs \$8.29, while the 9-inch costs \$10.39. Based on Jimmy's choice of the 9-inch, what can we infer?
 - a. Jimmy valued the additional 3 inches of sandwich at less than \$2.10.
 - b. Jimmy valued the additional 3 inches of sandwich at more than \$2.10.**
 - c. Jimmy did not consider the marginal value of the extra sandwich.
 - d. Jimmy made a poor economic decision.
2. Why did Jimmy decline the \$0.99 peppers and onions?
 - a. The marginal benefit of the peppers and onions to his sandwich was greater than \$0.99.
 - b. The marginal benefit of the peppers and onions to his sandwich was less than \$0.99.**
 - c. The marginal cost was negative.
 - d. Jimmy didn't have enough money.

3. The small fry was 3 ounces for \$2.99, while the large fry was 6 ounces for \$3.89. Why did Jimmy choose the large fry?
- The marginal cost of the extra 3 ounces was \$0.90, and it was valued at more than \$0.90.**
 - The marginal cost of the extra 3 ounces was \$3.89, and Jimmy valued it at less than that.
 - The small fry was overpriced compared to the large.
 - Even though he and his dad would likely only eat 3 ounces of fries in total, the per ounce price was cheaper to purchase the large fry.
4. One scoop of ice cream costs \$3.99, while two scoops cost \$4.99. What was the marginal cost of the second scoop, and what does Jimmy's choice suggest?
- The marginal cost of the second scoop was \$4.99; Jimmy valued it at less than that.
 - The marginal cost of the second scoop was \$1.00; Jimmy valued it at more than \$1.00.**
 - The marginal cost of the second scoop was \$3.99; Jimmy valued it at exactly that.
 - The marginal cost of the second scoop was \$1.00; Jimmy valued it at less than \$1.00.

MB=MC

Economic decisions should be made up to the point where marginal benefit equals marginal cost, because that is where total net gain is maximized.

INSTRUCTIONS: Use the information provided and marginal analysis to answer each of the following questions.

Uber Rides Provided by Jackson

Quantity of Uber Rides	Total Revenue	Total Cost	Marginal Revenue (MR)	Marginal Cost (MC)
1	\$25	\$10	\$25	-
2	\$48	\$22	\$23	\$12
3	\$69	\$36	\$12	\$14
4	\$87	\$52	\$18	\$16
5	\$103	\$70	\$16	\$18
6	\$116	\$90	\$13	\$20
7	\$126	\$112	\$10	\$22
8	\$133	\$136	\$7	\$24

5. Based on the table, what is the profit-maximizing number of Uber rides?
- 3 rides
 - 4 rides**
 - 5 rides
 - 6 rides

6. What is the net benefit (profit) when 4 Uber rides are provided by Jackson?

- a. \$31
- b. \$35**
- c. \$39
- d. \$41

7. Why does Jackson stop providing rides after the 4th ride?

- i. His total benefit falls below total cost.
- j. The cost of providing an additional ride rises above the benefit of providing the ride.**
- k. Total cost decreases at a decreasing rate.
- l. Marginal benefit is still greater than marginal cost.

A student is considering how many slices of pizza to buy at lunch. Each slice costs \$2. The student's marginal benefit (satisfaction measured in dollars) from each additional slice is:

1st slice: \$5
2nd slice: \$3
3rd slice: \$2
4th slice: \$1

8. At what point does the student maximize net benefit?

When eating 3 slices of pizza.

9. What is the total benefit of 3 slices? What is the total cost?

\$10 / \$6

10. Should the student buy the 4th slice? Why or why not?

No. Even though the total benefit would still be greater than the total cost, the marginal cost of the 4th slice is \$2 while the marginal benefit is only \$1.

A student loves going to the movies, which cost \$10 per ticket. The marginal benefit of each additional movie declines as follows:

1st movie: \$18
2nd movie: \$14
3rd movie: \$10

4th movie: \$6

5th movie: \$2

11. How many movies should the student watch to maximize net benefit?

3 movies

12. Explain why the student does not choose to watch 5 movies, even though they provide some benefit.

The marginal cost of the 4th and 5th movies are greater than the marginal benefit.

A sandwich shop earns additional total revenue by hiring workers. Wages per worker are \$100/day. The marginal revenue product (MRP) of each additional worker is:

1st worker: \$180

2nd worker: \$140

3rd worker: \$100

4th worker: \$70

5th worker: \$30

13. How many workers should the shop hire to maximize profit?

3 workers

14. What happens if the shop hires the 4th worker?

The 4th worker would cost the shop \$100, but only provide a \$70 benefit.

PRACTICE

INSTRUCTIONS: Read the scenario and answer the questions that follow.

1. A small clothing company produces T-shirts. The following table shows total revenue (TR) and total cost (TC) for different quantities. Based on marginal analysis, what is the profit-maximizing number of T-shirts to produce?

Quantity of T-shirts	Total Revenue	Total Cost	Marginal Revenue (MR)	Marginal Cost (MC)
0	\$0	\$50	-	-
1	\$30	\$70	\$30	\$20
2	\$60	\$85	\$30	\$15
3	\$90	\$105	\$30	\$20
4	\$120	\$140	\$30	\$35

- a. 1
- b. 2
- c. 3**
- d. 4

2. A student decides how many hours to study economics. The marginal benefit (MB) is measured in additional exam points expected, and the marginal cost (MC) is measured in points lost from reduced sleep and stress. According to marginal analysis, how many hours should the student study?

Hours of Study	Marginal Benefits (Points)	Marginal Cost (Points)
1	15	2
2	12	5
3	10	8
4	6	12

- e. 1
- f. 2
- g. 3**
- h. 4

3. A factory is considering how much pollution to clean up. The table shows the marginal benefit (MB) to society and the marginal cost (MC) to the firm of reducing each unit of pollution. How many units of pollution should the factory reduce?

Units of Pollution Reduced	Marginal Benefit	Marginal Cost
1	\$100	\$20
2	\$80	\$40
3	\$60	\$60
4	\$40	\$80
5	\$20	\$100

- i. 1
- j. 2
- k. 3**
- l. 4

4. A baseball fan is deciding how many games to attend in a season. The marginal benefit (MB) is measured in “units of enjoyment” and the marginal cost (MC) is measured in dollars spent. Based on marginal analysis, how many games should the fan attend?

Number of Games	Total Benefit	Total Cost	Marginal Revenue (MR)	Marginal Cost (MC)
1	\$50	\$20		
2	\$90	\$50		
3	\$120	\$90		
4	\$140	\$140		

- m. 1
- n. 2**
- o. 3
- p. 4

5. A pizza shop considers how many pizzas to make during lunch. The marginal revenue (MR) and marginal cost (MC) are listed below. How many pizzas should the shop produce?

Pizzas	Marginal Revenue (MR)	Marginal Cost (MC)
1	\$12	\$5
2	\$10	\$8
3	\$8	\$9
4	\$6	\$11

- q. 1
- r. 2**
- s. 3
- t. 4

Hours spent studying Economics	Score on Test	Total Benefits (Points)	Total Cost (Points)
0	1	0	0
50	2	10	5
100	3	20	10
150	4	30	15
200	5	31	20

6. Use the data in the table above to explain the optimal amount that should be spent studying Economics.

150 hours. The marginal benefit of additional studying is less than the marginal cost.

7. Explain how marginal analysis could be used to determine if a city should increase the speed limit on a road from 40mph to 45 mph.

Marginal analysis means comparing the additional benefits and the additional costs of a decision. If a city is deciding whether to increase the speed limit on a road from 40 mph to 45 mph, it should look at the marginal benefits and marginal costs of that change.

Marginal Benefit: Drivers would save a small amount of time on their trips, which could reduce commuting costs and improve overall convenience. Faster travel might also increase economic activity by allowing people to get places more quickly.

Marginal Cost: Higher speeds may increase the likelihood or severity of accidents, raise noise levels, and possibly require more road maintenance. There may also be higher enforcement costs for monitoring

the new speed limit.

If the marginal benefits of the extra 5 mph (like saved travel time) are greater than the marginal costs (like more accidents or repairs), then raising the speed limit is a good choice. But if the costs outweigh the benefits, the city should keep the speed limit at 40 mph.

8. Think about the last time you cleaned your room. At first, the benefit of picking things up was high (you could walk without tripping, find what you need, and your parents stopped bugging you). But eventually, the benefit of cleaning one more item or dusting the windowsill was pretty small compared to the time and effort it took. According to the table, what is the optimal number of minutes Gregory should spend cleaning his room?

Minutes Cleaning	Total Benefit (Value of Cleanliness)	Total Cost (Value of Time/Effort)
0	0	0
5	30	5
10	50	15
15	65	30
20	75	50
25	80	75
30	82	105

- n. 10 minutes
- o. 15 minutes**
- p. 20 minutes
- q. 25 minutes

9. Suppose you have to move and there will be an open house tomorrow. The added cleanliness now has a higher benefit. According to the table and new situation, what is the optimal number of minutes Gregory should spend cleaning his room?

Minutes Cleaning	Total Benefit (Value of Cleanliness)	Total Cost (Value of Time/Effort)
0	0	0
5	45	5
10	80	15
15	105	30
20	125	50
25	143	75
30	155	105

- r. 10 minutes
- s. 15 minutes
- t. 20 minutes**
- u. 25 minutes

10. A student is purchasing a new SUV and must decide which package to add. Each package includes the previous level's features plus extras. The table below shows the total cost of each package and the estimated total benefit (in \$ value to the buyer) of the features. Which package should the student choose?

Package	Total Cost	Total Benefit
Standard	\$1,600	\$1,500
Mid	\$3,200	\$3,000
High	\$5,200	\$4,500
Lux	\$6,800	\$6,500
Sasquatch	\$7,700	\$7,500

- v. Standard
- w. Mid
- x. High**
- y. Lux
- z. Sasquatch

PROVE - ADVANCED PRACTICE QUESTIONS

Marginal analysis will find its way into most every unit of Economics. You will likely see multiple questions that require you to use marginal analysis.

1. A city considers reducing air pollution. The table shows the marginal benefit (MB) and marginal cost (MC) of reducing tons of pollution. At what level of pollution reduction is net benefit maximized?

Tons Reduced	Marginal Benefit (MB)	Marginal Cost (MC)
1	\$900	\$100
2	\$700	\$250
3	\$500	\$400
4	\$300	\$600
5	\$100	\$900

- f. 1
- g. 2
- h. 3**
- i. 4
- j. 5

2. A student's marginal benefit (MB) and marginal cost (MC) of studying economics are listed below. How many hours will the student study to maximize net benefit?

Hours	Marginal Benefit (MB)	Marginal Cost (MC)
1	50	10
2	40	20
3	30	30
4	20	40
5	10	50

- k. 1
- l. 2
- m. 3**
- n. 4
- o. 5

3. A pizza shop's total revenue (TR) and total cost (TC) are included in the table below. Using marginal analysis, how many pizzas should the shop produce to maximize net benefit (profit)?

Pizza Produced	Total Revenue (TR)	Total Cost (TC)
0	\$0	\$0
1	\$10	\$6
2	\$20	\$13
3	\$30	\$21
4	\$40	\$30
5	\$50	\$40

- p. 1
- q. 2
- r. 3
- s. 4
- t. 5**

4. A coffee shop hires workers to produce lattes. Each latte sells for \$4 in a perfectly competitive market. The wage rate for each worker is \$60 per day. The table below shows the total product (TP) of lattes produced by different numbers of workers. How many workers should the coffee shop hire to maximize profit?

Number of Workers	Total Product (Lattes)
0	0
1	20
2	50
3	75
4	95
5	110
6	120

- u. 2
- v. 3
- w. 4
- x. 5**
- y. 6

5. A city removes snow, with MB and MC as seen in the table below. How many streets should be cleared?

Streets Cleared	Marginal Benefit (MB)	Marginal Cost (MC)
1	500	100
2	400	200
3	300	350
4	200	500
5	100	700

z. 1

aa. 2

bb. 3

cc. 4

dd. 5

6. A city is considering reducing the amount of pollution in a local river. The table below shows the total benefit and total cost of each level of pollution reduction. Based on the data, how many units of pollution reduction should the city undertake?

Units of Pollution Reduced	Total Benefit (TB)	Total Cost (TC)
0	\$0	\$0
1	\$100	\$20
2	\$180	\$60
3	\$240	\$120
4	\$280	\$200
5	\$300	\$300
6	\$310	\$420

ee. 2

ff. 3

gg. 4

hh. 5

ii. 6

7. If the marginal benefit of defense spending is falling and the marginal cost of raising taxes is rising, the efficient allocation occurs when:

jj. Total benefits = total costs

kk. MB = MC

ll. MB > MC

mm. MB < MC

nn. Government maximizes spending regardless of cost

8. A consumer's MB and MC of movies are displayed in the table below. How many movies will the consumer watch?

Movies	Marginal Benefit (MB)	Marginal Cost (MC)
1	30	5
2	25	10
3	20	20
4	15	30
5	10	40

oo. 1

pp. 2

qq. 3

rr. 4

ss. 5

9. If the marginal benefit of cleaning water decreases with each unit and the marginal cost increases, which of the following is true at the efficient level?

tt. MB > MC

uu. MB < MC

vv. MB = MC

ww. Total Benefit < Total Cost

xx. Society wants zero pollution

10. A landscaping business is deciding how many workers to hire for the upcoming week. The **total benefit (TB)** represents the value of the additional landscaping contracts completed, while the **total cost (TC)** represents wages paid to workers. What is the **profit-maximizing number of workers** the business should hire?

Workers Hired	Total Benefit (TB)	Total Cost (TC)
0	\$0	\$0
1	\$200	\$150
2	\$380	\$310
3	\$540	\$480
4	\$680	\$670
5	\$780	\$880

yy. 1

zz. 2

aaa. 3

bbb. 4

ccc. 5



SCAN TO SEE THE CORRECT ANSWERS AND EXPLANATION

WONDER

Read [To Be A Happy Person, Understand Marginal Utility](#) independently. Then, respond to the following three questions. Be prepared to discuss your answers with a partner and the whole class in order to be exposed to a variety of perspectives.

1. Think about a food you really enjoy. How would the marginal utility of the first bite compare to the third or fourth serving, and how might that affect when you decide to stop eating?

The first bite of my favorite food, like pizza, gives me the most satisfaction because I'm hungry and craving it. By the third or fourth slice, I'm still enjoying it, but each extra slice gives me less additional satisfaction than the first. That decrease in marginal utility is why I eventually stop eating, even if there's more pizza left.

2. Have you ever had to miss an event with friends or family because something else (like homework, sports, or work) ranked higher in your preferences at that time? How does marginal utility help explain your decision?

Last week, I skipped hanging out with my friends because I had a big test the next day and needed to study. The marginal utility of studying was higher than the extra happiness I would have gotten from going out. Marginal utility shows that the benefit of one choice was greater than the benefit of the other at that time.

3. The article gives the example of a girl choosing Pinterest over dating, even though she likes the guy. How does this illustrate the concept of opportunity cost, and what does it reveal about how people prioritize their time and happiness?

Choosing Pinterest over dating shows opportunity cost because she gave up one option (spending time with the guy) in order to gain more satisfaction from another (browsing Pinterest). It shows that people rank their choices and pick the one that gives them the most utility at the moment. Even though she liked the guy, the higher utility from Pinterest meant that was her best option for happiness right then.