

Student name: _____

MULTIPLE CHOICE - Choose the one alternative that best completes the statement or answers the question.

The higher the interest rate,

the greater the present value of a future amount.

the smaller the present value of a future amount.

the greater the level of inflation.

the smaller the level of inflation.

If the interest rate is 10 percent and cash flows are \$1,000 at the end of year one and \$2,000 at the end of year two, then the present value of these cash flows is

\$2,562.

\$3,200.

\$439.

\$3,000.

Accounting profits are

total revenue minus total cost.

total cost minus total revenue.

marginal revenue minus total cost.

total revenue minus marginal cost.

Economic profits are

total revenue minus total cost.

marginal revenue minus marginal cost.

total revenue minus total opportunity cost.

total profits of the economy as a whole.

Which of the following is an implicit cost to a firm that produces a good or service?

salary forgone from job given up in starting business

cost of Materials

costs of operating production machinery

costs of renting or buying land for a production site

Which of the following is an implicit cost to a firm that produces a good or service?

labor costs

costs of operating production machinery

forgone profits of producing a different good or service

costs of renting or buying land for a production site

Which of the following is an implicit cost of going to college?

tuition

cost of books and supplies

room and board

forgone wages

Which of the following are signals to the owners of scarce resources about the best uses of those resources?

profits of businesses

government regulations

economic indicators

the accounting cost of those resources

The primary inducement for new firms to enter an industry is

increased technology.

availability of labor.

low capital costs.

presence of economic profits.

As more firms enter an industry,

accounting profits increase.

economic profits decrease.

prices rise.

costs rise.

Scarce resources are ultimately allocated toward the production of goods most wanted by society because

firms attempt to maximize profits.

they are not efficiently utilized in these areas.

consumers demand inexpensive goods and services.

managers are benevolent.

The opportunity cost of receiving \$10 in the future as opposed to getting that \$10 today is

the forgone interest that could be earned if you had the money today.

the taxes paid on any earnings.

the value of \$10 relative to the total income of that person.

the value of \$10 relative to the total income of all persons.

If the interest rate is 5 percent, what is the present value of \$10 received one year from now?

\$9.50

\$10.05

\$9.52

\$9.77

If you put \$500 in a savings account at an interest rate of 10 percent, how much money will you have in one year?

\$550

\$600

\$575

\$590

If you put \$1,000 in a savings account at an interest rate of 10 percent, how much money will you have in one year?

\$1,200

\$909

\$950

\$1,100

If the interest rate is 3 percent, the present value of \$600 received at the end of five years is

\$780.00.

\$517.57.

\$528.30.

\$735.12.

If the interest rate is 5 percent, the present value of \$200 received at the end of five years is

\$121.34.

\$156.71

\$176.41.

\$132.62.

When dealing with present value, a higher interest rate
does not affect the present value of the future amount.
increases the present value of a future amount.
decreases the present value of a future amount.
only changes the costs of the project.

A farm must decide whether to purchase a new tractor. The tractor will reduce costs by \$2,000 in the first year, \$2,500 in the second, and \$3,000 in the third and final year of usefulness. The tractor costs \$9,000 today, while the stated cost savings will be realized at the end of each year. If the interest rate is 7 percent, what is the net present value of purchasing the tractor?

- \$3,467.46
- \$2,498.35
- \$2,320.12
- \$6,501.65

A firm will have constant profits of \$75,000 per year for the next five years, and the interest rate is 3 percent. Assuming these profits are realized at the end of each year, what is the present value of these future profits?

- \$3,45,874.58
- \$3,41,852.96
- \$3,23,582.12
- \$3,43,478.04

A firm will have constant profits of \$100,000 per year for the next four years, and the interest rate is 6 percent. Assuming these profits are realized at the end of each year, what is the present value of these future profits?

- \$325,816.49
- \$376,741.64
- \$400,000.85

\$346,510.56

A firm will maximize the present value of future profits by maximizing current profits when the growth rate in profits is constant.

growth rate in profits is larger than the interest rate.

interest rate is larger than the growth rate in profits and both are constant.

growth rate and interest rate are constant and equal.

Suppose the interest rate is 7 percent, the expected growth rate of the firm is 5 percent, and the firm is expected to continue forever. If current profits are \$1,000, what is the value of the firm?

\$53,500

\$52,500

\$49,529

\$50,875

Suppose the interest rate is 5 percent, the expected growth rate of the firm is 2 percent, and the firm is expected to continue forever. If current profits are \$1,000, what is the value of the firm?

\$31,000

\$30,000

\$26,500

\$35,000

To maximize profits, a firm should continue to increase production of a good until

total revenue equals total cost.

profits are zero.

marginal revenue equals marginal cost.

average cost equals average revenue.

What is the marginal benefit of producing the third unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
1	100	50
2	180	110
3	250	180
4	290	270
5	310	380

250

70

0

90

What is the marginal cost of producing the fifth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
1	100	50
2	180	110
3	250	180
4	290	270
5	310	380

270

110

50

0

At what level of output does marginal cost equal marginal benefit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
1	100	50
2	180	110
3	250	180
4	290	270
5	310	380

1

2

3

4

What is the level of net benefits when zero units are produced?

Number Units Produced	Total Benefit	Total Costs
0	0	0
1	100	50
2	180	110
3	250	180
4	290	270
5	310	380

0

−50

50

100

What is the level of net benefits when four units are produced?

Number Units Produced	Total Benefit	Total Costs
0	0	0
1	100	50
2	180	110
3	250	180
4	290	270
5	310	380

0

70

-70

20

What is the marginal net benefit of producing the fourth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
1	100	50
2	180	110
3	250	180
4	290	270
5	310	380

-50

0

60

40

The additional benefits that arise by using an additional unit of the managerial control variable is defined as the

total benefit.

opportunity cost.

marginal benefit.

present value of benefits.

The additional cost incurred by using an additional unit of the managerial control variable is defined as the

total cost.

net cost.

net benefit.

marginal cost.

The change in net benefits that arises from a one-unit change in quantity is the

marginal net benefits.

total net benefits.

variable benefits.

present value benefits.

The difference between marginal benefits and marginal costs is the

profits.

marginal net benefits.

opportunity cost.

accounting cost.

In order to maximize net benefits, firms should produce where

total benefits equal total costs.

profits are zero.

marginal cost is minimized.

marginal benefits equal marginal costs.

[Appendix material: calculus required] Given the cost function $C(Y) = 6Y^2$, what is the marginal cost?

$6Y$

Y^2

$3Y$

$12Y$

[Appendix material: calculus required] Given the benefit function $B(Y) = 400Y - 2Y^2$, the marginal benefit is

$200Y$.

$400 - 2Y^2$.

$400 - 4Y$.

$800 - 2Y$.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 50Y - 3Y^2$ and $C(Y) = 4Y^2$. Then marginal benefits are

$50 - 6Y$

$8Y$

$50Y - 6Y$

$6Y$

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 100Y - 8Y^2$ and $C(Y) = 10Y^2$. Then marginal benefits are

$100 - 16Y$.

$100Y - 8Y^2$.

$50 - 4Y$.

$200Y - 10Y$.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 200Y - 8Y^2$ and $C(Y) = 5Y^2$. Then marginal costs are

10Y.

$200 - 8Y$.

$200Y - 8Y$.

8Y.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 100Y - 8Y^2$ and $C(Y) = 10Y^2$. Then marginal costs are

$20Y^2$.

40.

5Y.

20Y.

[Appendix material: calculus required]. Suppose total benefits and total costs are given by $B(Y) = 90Y - 2Y^2$ and $C(Y) = 5Y^2$. What level of Y will yield the maximum net benefits?

90/12

100/30

75/18

100/36

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 100Y - 8Y^2$ and $C(Y) = 10Y^2$. What level of Y will yield the maximum net benefits?

$75 \div 36$

$75 \div 18$

$60 \div 18$

$100 \div 36$

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 100Y - 8Y^2$ and $C(Y) = 10Y^2$. What is the maximum level of net benefits (rounded to the nearest whole number)?

92

139

78

613

If a producer offers a price that is in excess of a consumer's valuation of the good, the consumer must buy the good at that price.

will refuse to purchase the good.

must revalue the good.

will take out a loan to purchase the good.

Negotiations between the buyer and seller of a new house are an example of consumer–consumer rivalry.

consumer–producer rivalry.

producer–producer rivalry.

monopoly.

The behavior of bidders in an auction is an example of consumer–consumer rivalry.

consumer–producer rivalry.

producer–producer rivalry.

supplier–consumer rivalry.

Under producer–producer rivalry, individual firms want to sell the product at the maximum price consumers will pay, but they are unable to do this because of

cost considerations.

the scarcity of resources.

competition among sellers.

competition among buyers.

In the *Wealth of Nations*, Adam Smith argues that

self-interest leads to the efficient allocation of resources.

benevolence leads to the efficient allocation of resources.

profits are maximized where marginal revenue equals net marginal benefits.

minimization of costs occurs when average costs equal average benefits.

Economics

exists because of scarcity.

is not related to decision making.

is the science of the rich.

has nothing to do with the allocation of resources.

Managerial economics

has little to say about day-to-day decisions.

is valuable to the coordinator of a shelter for the homeless.

is not relevant for managers of not-for-profit groups.

is the study of how to get rich in the stock market.

Basic principles that comprise effective management include

identifying goals and constraints.

focusing only on the importance of costs.

ignoring incentives.

emphasizing short-term profits.

Which of the following is the main goal of a continuing company?

to maximize the value of the firm

to minimize costs

to improve product quality

to enhance service to its customers

Which of the following is true?

Accounting costs generally understate economic costs.

Accounting profits generally understate economic profits.

In the absence of any opportunity costs, accounting profits are less than economic profits.

Accounting costs generally overstate economic costs.

Which of the following is *incorrect*?

Accounting profits generally overstate economic profits.

Accounting profits do not take opportunity cost into account.

Economic costs include not only the accounting costs but also the opportunity costs of the resources used in production.

Managers should only be interested in accounting profits.

What is the main role of economic profits?

to signal where resources are most highly valued

to help firms cover their production costs

to help consumers cover their opportunity cost

to signal where resources are least-valued

If the annual interest rate is 0 percent, the present value of receiving \$1.10 in the next year is

\$1.00.

\$1.01.

\$1.11.

\$1.10.

If the interest rate is 5 percent, \$100 received at the end of seven years is worth how much today?

$$\frac{100}{10.05^7}$$

$$\frac{100}{1+0.05^7}$$

$$\frac{100}{1+5^7}$$

100

As the interest rate increases, the opportunity cost of waiting to receive a future amount increases.

decreases.

may rise or fall.

remains the same.

The higher the interest rate,

the greater the present value.

the greater the net present value.

both the present value and net present value are greater.

neither the present value nor the net present value is greater.

To an economist, maximizing profit is

maximizing the value of the firm.

maximizing the current year's profits.

minimizing the permanent total costs.

minimizing the future risks.

The value of the firm is the

current value of profits.

present discounted value of all future profits.

average value of all future profits.

total value of all future profits.

Marginal benefits are the

incremental benefits of a decision.

average benefits of a decision.

total benefits of a decision.

present discounted benefit of a decision.

The optimal amount of studying is determined by comparing

marginal benefit and the total cost of studying.

marginal benefit and the total benefit of studying.

marginal benefit and the marginal cost of studying.

total benefit and the total cost of studying.

If marginal benefits exceed marginal costs, it is profitable to

increase Q (quantity, output produced).

decrease Q (quantity, output produced).

stay at that level of Q (quantity, output produced).

produce zero.

If marginal costs exceed marginal benefits, then

the firm ends up with a net loss.

the firm's average costs exceed average benefits.

the firm should decrease its production level.

the firm should not change its production level.

In order to maximize net benefits, the managerial control variable should be used up to the point where

total costs equal total benefits.

average costs equal marginal benefits.

average benefits equal marginal costs.

net marginal benefits equal zero.

Which of the following is the *incorrect* statement?

The total cost curve is the slope of the marginal cost.

$dB(Q)/dQ$ MB.

The slope of the net benefit curve is horizontal where MB = MC.

The marginal benefits curve and the marginal costs curve have equal slopes at the optimal level of Q.

Which of the following is the incorrect statement?

The marginal benefits curve is the slope of the total benefits curve.

$dB(Q) \div dQ = MB$.

The slope of the net benefit curve is horizontal where MB = MC.

The difference in the slope of the total benefit curve and the total cost curve is maximized at the optimal level of Q.

[Appendix material: calculus required] When $MB = 500 - 5Y - 12Y$ and $TC = 10Y + 200$, the optimal level of Y is

120.

112.

102.

98.

[Appendix material: calculus required] When $MB = 300 - 12Y$ and $TC = 12Y + 108$, the optimal level of Y is

25.

4.5.

8.

24.

Incentive plans imply

if managers get highly paid, then they work hard.

if managers put forth little effort, they receive little pay; if they put forth much effort and hence generate many sales, they receive a lot of pay.

managers are not selfish.

managers should be watched all the time.

Which of the following is *not* a source of rivalry in economic transactions?

consumer–producer rivalry

producer–producer rivalry

government–producer rivalry

consumer–consumer rivalry

Consumer–producer rivalry occurs because of

consumers' high valuation and producers' low production cost of a good.

producers' high production cost and consumers' low valuation of a good.

the competing interests of consumers and producers.

the competing interests of consumers and suppliers of inputs.

Trade will take place

if the maximum that a consumer is willing and able to pay is *less* than the minimum price the producer is willing and able to accept for a good.

if the maximum that a consumer is willing and able to pay is *greater* than the minimum price the producer is willing and able to accept for a good.

only if the maximum that a consumer is willing and able to pay is *equal* to the minimum price the producer is willing and able to accept for a good.

if the maximum amount that a consumer is willing to pay equals 0.

Consumer–consumer rivalry

increases the negotiating power of consumers in the marketplace.

reduces the negotiating power of producers in the marketplace.

reduces the negotiating power of consumers in the marketplace.

increases the likelihood of government intervention in the marketplace.

Consumer–consumer rivalry arises because of

human nature.

the limited number of suppliers.

the scarcity of goods available.

the dependence of producers upon technology.

Producer–producer rivalry functions

only when multiple sellers for a product compete in the market.

only when single sellers for a product compete in the market.

regardless of the number of sellers.

even when customers are not scarce.

Because of producer–producer rivalry, the price will tend to

be driven to a lower price.

rise up to the maximum price the consumers are willing and able to pay.

be the same as the competitive price.

be the same as the monopoly price.

Which is the correct statement about the relationship between government and the market?

Government should intervene on the consumers' behalf.

Government should intervene on the producers' behalf.

Government should not intervene on any party's behalf.

Government often plays a role in disciplining the market process.

Suppose the growth rate of the firm's profit is 5 percent, the interest rate is 6 percent, and the current profits of the firm are \$80 million. What is the value of the firm?

\$89.2 million

\$1,413.3 million

\$8,480 million

\$727.7 million

Suppose the growth rate of the firm's profit is 5 percent, the interest rate is 6 percent, and the current profits of the firm are \$100 million. What is the value of the firm?

\$111.5 million

\$1,766.6 million

\$10,600 million

\$909.1 million

Maximizing the present value of all future profits is the same as maximizing current profits if the growth rate in profits is

greater than the interest rate.

less than the interest rate.

equal to the interest rate.

not constant over time.

Marginal benefit refers to

the average benefits that arise by using an additional unit of the managerial control variables.

the additional benefits that arise by using an additional unit of the managerial control variables.

the change in average benefits arising from a change in the control variable.

the change in the control variable as average benefits fall.

Generally when calculating profits as total revenue minus total costs, accounting profits are larger than economic profits because economists take into account

only explicit costs.

only implicit costs.

both explicit and implicit costs.

that both types of profits are always equal because they account for the same costs.

"Our marginal revenue is greater than our marginal cost at the current production level." This statement indicates that the firm

is maximizing profits.

should increase the quantity produced to increase profits.

should decrease the quantity produced to increase profits.

should retire.

If the interest rate is 5 percent and cash flows are \$2,000 at the end of year one and \$4,000 at the end of year two, then the present value of these cash flows is

\$5,532.88.

\$5,469.32.

\$4,978.25.

\$4,896.37.

If the interest rate is 5 percent and cash flows are \$3,000 at the end of year one and \$5,000 at the end of year two, then the present value of these cash flows is

\$7,392.29.

\$8,400.34.

\$4,222.50.

\$400.74.

New firms have incentive to enter an industry when there is(are)

new production technologies.

positive economic profits.

an abundance of labor.

high capital costs.

If the interest rate is 12.5 percent, what is the present value of \$200 received in one year?

\$25

\$177.78

\$197

\$225

If you put \$700 in a savings account at an interest rate of 3 percent, how much money will you have in one year?

\$370

\$679.61

\$703.00

\$721

If the interest rate is 2 percent, the present value of 500 received at the end of four years is

461.92.

459.23.

475.12.

452.69.

If the interest rate is 3 percent, the present value of \$900 received at the end of four years is

\$792.00.

\$799.64.

\$873.79.

\$927.40.

Maximizing the lifetime value of the firm is equivalent to maximizing the firm's current profits if the

interest rate is larger than the growth rate in profits and both are constant.

growth rate in profits is constant and is larger than the interest rate.

interest rate is smaller than the growth rate of profits.

growth rate of profits and the interest rate are equal.

Given the benefit function $B(Y) = 200Y - 3Y^2$, the marginal benefit is

$600Y$.

$$200 - 3Y.$$

$$200 - 6Y^2.$$

$$200 - 6Y.$$

Negotiation between the buyer and seller of a new ski boat is an example of

consumer–producer rivalry.

consumer–consumer rivalry.

producer–producer rivalry.

supplier–producer rivalry.

If the annual interest rate is 0 percent, the present value of receiving \$210 in the next year is

\$221.

\$200.

\$201.

\$210.

If the interest rate is 7 percent, \$500 received at the end of nine years is worth how much today?

$$\frac{500}{10.07^9}$$

$$\frac{500}{1+0.07^9}$$

$$\frac{500}{1+7^9}$$

500

Suppose the growth rate of the firm's profit is 7 percent, the interest rate is 10 percent, and the current profits of the firm are \$120 million. What is the value of the firm?

\$44 million

\$4,280 million

\$4,400 million

\$6,800 million

The opportunity cost of an action is the

monetary payment the action required.

value of the most highly valued alternative action given up.

cost of all alternative actions that could have been taken.

amount a person pays another person to not take the action.

What is the total benefit associated with producing four units of the control variable, Q (identify point A in the table)?

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

600

2,600

3,000

3,400

What is the total cost associated with producing eight units of the control variable, Q (identify point B in the table)?

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

3,000

3,600

3,800

4,200

What is the net benefit associated with producing two units of the control variable, Q (identify point C in the table)?

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

600

800

1,200

1,400

What is the marginal benefit associated with producing six units of the control variable, Q (identify point D in the table)?

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

600

400

200

100

What is the marginal cost associated with producing three units of the control variable, Q (identify point E in the table)?

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

50

100

200

300

What is the marginal net benefit associated with producing five units of the control variable, Q (identify point F in the table)?

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

–100

–75

0

100

[Appendix material: calculus required] The marginal cost in the table is

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

increasing at an increasing rate.

decreasing at an increasing rate.

increasing at a constant rate.

decreasing at a decreasing rate.

[Appendix material: calculus required] The marginal benefit in the table is

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

increasing at a constant rate.

decreasing at a constant rate.

increasing at a decreasing rate.

decreasing at an increasing rate.

To maximize net benefits in the table, it is most appropriate to use

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

four units of the control variable, since the marginal benefit exceeds marginal cost.

six units of the control variable, since the marginal cost exceeds marginal benefit.

five units of the control variable, since net marginal benefits are zero.

one unit of the control variable, since marginal net benefits are highest.

[Appendix material: calculus required] Total benefits in the table are

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

increasing at a decreasing rate.

increasing at a constant rate.

decreasing at a constant rate.

decreasing at an increasing rate.

[Appendix material: calculus required] Total costs in the table are

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

decreasing at a constant rate.

decreasing at a decreasing rate.

increasing at a constant rate.

increasing at an increasing rate.

Net benefits in the table

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

initially increase, reach a maximum, and then decrease.

initially decrease, reach a minimum, and then increase.

remain relatively stable over different values for the control variable.

initially remain relatively stable and then decrease.

Marginal net benefits in the table

Control Variable	Total Benefits	Total Costs	Net Benefits	Marginal Benefit	Marginal Cost	Marginal Net Benefit
Q	B (Q)	C (Q)	N (Q)	MB (Q)	MC (Q)	MNB (Q)
0	0	0	0	–	–	–
1	900	100	800	900	100	800
2	1,700	300	C	800	200	600
3	2,400	600	1,800	700	E	400
4	A	1,000	2,000	600	400	200
5	3,500	1,500	2,000	500	500	F
6	3,900	2,100	1,800	D	600	–200
7	4,200	2,800	1,400	300	700	–400
8	4,400	B	800	200	800	–600
9	4,500	4,500	0	100	900	–800
10	4,500	5,500	–1,000	0	1,000	–1,000

initially increase, reach a maximum, and then decrease.

initially decrease, reach a minimum, and then increase.

remain relatively stable over different values for the control variable.

decrease at a constant rate.

Compute the present value of a perpetual bond that pays a *monthly* cash flow of \$1,000 at an annual interest rate of 12 percent.

\$8,333.33

\$9,333.33

\$100,000

\$101,000

Find the annual interest rate that would create a perpetual *annual* cash flow stream of \$15,000 when the present value of the asset is \$100,000.

0.15 percent

15 percent

0.1765 percent

17.65 percent

Compute the present value of a preferred stock that pays, in perpetuity, an annual cash flow of \$200 at an annual interest rate of 5 percent.

\$190.48

\$210

\$4,000

\$4,200

Suppose $B(Q) = 5Q - Q^2$ and $C(Q) = 1 + Q^2$. Then, net benefits are _____ when Q equals _____ units since the second-order condition is _____.

maximized; $5 \div 4$; negative

minimized; -1 ; positive

maximized; $4 \div 5$; positive

minimized; $4 \div 5$; negative

The lower the interest rate,

the greater the present value of a future amount.

the smaller the present value of a future amount.

the greater the level of inflation.

the smaller the level of inflation.

What is the marginal benefit of producing the fortieth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
10	120	40
20	200	100
30	270	170
40	310	260
50	330	370

4

80

7.75

40

What is the marginal cost of producing the tenth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
10	120	40
20	200	100
30	270	170
40	310	260
50	330	370

80

5

40

4

At what level of output does marginal cost equal marginal benefit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
10	120	40
20	200	100
30	270	170
40	310	260
50	330	370

10

20

30

40

What is the level of net benefit when 20 units are produced?

Number Units Produced	Total Benefit	Total Costs
0	0	0
10	120	40
20	200	100
30	270	170
40	310	260
50	330	370

-100

80

100

10

What is the marginal net benefit of producing the twentieth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
10	120	40
20	200	100
30	270	170
40	310	260
50	330	370

2

-5

-2

8

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 80Y - 4Y^2$. Then marginal benefits are

$80 - 8Y$.

$80 - 4Y$.

$80 - 2Y$.

$80Y - 8Y^2$.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 150Y - 10Y^2$. Then marginal benefits are

$150 - 20Y$.

$150Y - 8Y^2$.

$15 - 4Y$.

$5 - 20Y$.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 150Y - 10Y^2$ and $C(Y) = 10Y^2$. Then marginal costs are

$20Y$.

2Y.

10Y.

5Y.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 150Y - 10Y^2$ and $C(Y) = 5Y^2$. Then marginal costs are

2.5Y.

25Y.

5Y.

10Y.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 150Y - 10Y^2$ and $C(Y) = 5Y^2$. What level of Y will yield the maximum net benefits?

7

$10 \div 9$

5

$150 \div 20$

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 220Y - 15Y^2$ and $C(Y) = 10Y$. What level of Y will yield the maximum net benefits?

7

$10 \div 9$

5

$150 \div 20$

Suppose the growth rate of the firm's profit is 2 percent, the interest rate is 5 percent, and the current profits of the firm are \$100 million. What is the value of the firm?

\$3,500 million

\$3,400 million

\$276 million

\$282 million

Suppose the growth rate of the firm's profit is 7 percent, the interest rate is 9 percent, and the current profits of the firm are \$60 million. What is the value of the firm?

\$289.4 million

\$3,270 million

\$4,480.6 million

\$375 million

Suppose the growth rate of the firm's profit is 4 percent, the interest rate is 5 percent, and the current profits of the firm are \$75 million. What is the value of the firm?

\$2,111.5 million

\$7,766.6 million

\$10,600 million

\$7,875 million

Which of the following is the incorrect statement?

The marginal benefits curve is the slope of the total benefits curve.

$dB(Q) \div dQ = MB$.

The slope of the net benefit curve is vertical where $MB = MC$.

The vertical difference between the total benefit curve and the total cost curve is maximized at the optimal level of Q .

[Appendix material: calculus required] When $MB = 171 - 8Y$ and $TC = 5Y^2 + 108$, the optimal level of Y is

25.

9.5.

8.

24.

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 600Y - 12Y^2$ and $C(Y) = 20Y^2$. What level of Y will yield the maximum net benefits?

$600 \div 64$

$600 \div 32$

$300 \div 64$

$300 \div 8$

[Appendix material: calculus required] Suppose total benefits and total costs are given by $B(Y) = 600Y - 12Y^2$ and $C(Y) = 20Y^2$. What is the maximum level of net benefits?

2,500.75

2,812.5

1,916.4

7,500

Suppose the interest rate is 6 percent, the expected growth rate of the firm is 3 percent, and the firm is expected to continue forever. If current profits are \$1,200, what is the value of the firm?

\$41,200

\$40,000

\$36,500

\$42,400

If the interest rate is 4 percent, the present value of \$500 received at the end of four years is

\$427.40.

\$431.71.

\$416.41.

\$432.68.

[Appendix material: calculus required]. Suppose total benefits and total costs are given by $B(Y) = 600Y - 12Y^2$ and $C(Y) = 20Y^2$. What is the maximum level of total benefits?

2,812.5

7,500

1,600

5,625

Find the annual interest rate that would create a perpetual cash flow stream of \$20,000 when the present value of the asset is \$250,000.

2.5 percent

8 percent

12.5 percent

25 percent

You are considering paying \$200,000 for an annuity today, and you know you need a yearly cash stream of \$10,000 for expenses. What is the minimum annual interest rate (that would create a perpetual cash flow stream) needed for the annuity?

0.5 percent

5 percent

20 percent

1 percent

You are considering paying \$250,000 for an annuity today, and you know you need a yearly cash stream of \$20,000 for expenses. What is the minimum annual interest rate (that would create a perpetual cash flow stream) needed for the annuity?

5 percent

8 percent

12.5 percent

25 percent

What is the marginal benefit of producing the hundredth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
20	120	40
40	200	100
60	270	170
80	310	260
100	330	370

10

1

100

20

What is the marginal cost of producing the hundredth unit?

Number Units Produced	Total Benefit	Total Costs
0	0	0
20	120	40
40	200	100
60	270	170
80	310	260
100	330	370

1.50

5.50

100

110

At what level of output does marginal cost equal marginal revenue?

Number Units Produced	Total Benefit	Total Costs
0	0	0
20	120	40
40	200	100
60	270	170
80	310	260
100	330	370

20

40

60

80

Which of the following is *not* an area in which managerial economics is applied?

assisting a family in deciding whether to buy a new or used car

analyzing historical trends in the federal budget deficit

helping a real-estate investor understand the flow of returns over the next decade

assisting corn farmers about whether to use farmworkers or machines for crop harvest

Managerial economics assist managers in making

faster decisions.

decisions that best achieve a firm's goal.

more inclusive decisions.

decisions that best achieve the goals of employees.

Consumer-producer rivalry implies

a lower price of a good favors both producers and consumers.

a higher price of a good hurts producers while favoring consumers.

a higher price of a good favors producers while hurting consumers.

a lower price of a good hurts both producers and consumers.

The power of input suppliers implies

a lower price of an input favors both suppliers and purchasing firms.

a higher price of an input hurts the supplier while favoring the firm purchasing the inputs.

a higher price of an input favors the supplier while hurting the firm purchasing the input.

a lower price of an input hurts both suppliers and purchasing firms.

Suppose the firm achieves total revenue of \$1,000 by selling 150 units, while facing total costs of \$900. If the firm produces and sells 151 units, their total revenue is \$1,005 and their total cost is \$950. Should the firm produce and sell the extra unit?

no, since marginal profits are positive

no, since marginal profits are declining

yes, since profits are positive

yes, since the marginal benefit is positive

Suppose the firm achieves total revenue of \$1,000 by selling 100 units, while facing total costs of \$900. If the firm produces and sells 101 units, their total revenue is \$1,009 and their total costs is \$905. Should the firm produce and sell the extra unit?

no, since marginal profits are declining

yes, since marginal profits are positive

yes, since profits are positive

no, since profits are declining

Which of the following is least likely to be a constraint facing a hair salon?

the degree of financing from a bank

the number of upcoming graduates from a beauty service training institute

the number of hours the owner needs to provide childcare at home

the ability to purchase new land

Which of the following is least likely to be a constraint facing a hotel with an existing contract for room cleaning services?

the degree of financing from a bank

the number of upcoming graduates from a hotel industry training institute

the number of hours the owner needs to provide childcare at home

the ability to hire new cleaning staff

Which of the following is NOT one of the five forces identified by Michael Porter as impacting the sustainability of industry profits?

power of input suppliers

power of buyers

industry rivalry

power of technology

The presence of close substitutes in an industry

enhances the profits of the firms producing the substitute goods.

has no effect on industry profitability.

increases industry profitability.

lessens industry profitability.

When scarce resources are moved toward the production of goods that are most valued by society

the total welfare of society increases.

the total welfare of society decreases.

only the welfare of sellers increases.

the welfare of buyers decreases.

A firm's management team has evaluated three different projects, Projects A, B, C, and D. The firm can only pursue one project. The management team has chosen to pursue Project A as they believe it is most valuable. The team valued Project B as the next best and then Project C and then Project D, respectively. The firm's implicit cost of pursuing Project A is

Project B.

Projects B and C.

Projects B, C, and D.

Projects C and D.

Industry power tends to be higher when

inputs are relatively standardized.

input relationship-specific investments are maximized.

input markets are highly concentrated.

no alternative inputs are available.

Industry rivalry tends to be more intense when

products are highly differentiated.

there is little product differentiation.

consumer switching costs are high.

firms do not compete on price.

Samuel can spend his evening either studying for a test, watching a movie, or reading a book.

Samuel values studying for the test the most and watching the movie as his next best alternative, but he doesn't feel like reading tonight. Samuel's implicit cost of studying for the test is

studying for the test, watching the movie, and reading the book.

watching the movie and reading the book.

reading the book.

watching the movie.

studying for the test, watching the movie, and reading the book.

Two discount airlines both offer a flight from the same airport in New York to the same airport in Florida. To attract customers, the airlines compete on the price of the flight. This is an example of

consumer–consumer rivalry.

consumer–producer rivalry.

producer–producer rivalry.

government–producer rivalry.

Which of the following provides a measure of the overall fit of a regression?

t-statistic

F-statistic

R-square

the F-statistic and R-square

Which of the following can be used to quantify the overall statistical significance of a regression?

t-statistic

F-statistic

R-square

the F-statistic and R-square

Which of the following measures of fit penalizes a researcher for estimating many coefficients with relatively little data?

t-statistic

R-square

adjusted R-square

neither the t-statistic, the R-square, nor the adjusted R-square

The greater the standard error of an estimated coefficient,

the greater the t-value of the estimated coefficient.

the lower the t-value of the estimated coefficient.

the greater the R-square.

the greater the adjusted R-square.

For a given set of data and a regression equation, the greater the R-square,

the greater the t-value.

the lower the t-value.

the greater the adjusted R-square.

the lower the adjusted R-square.

The lower the standard error,

the less confident the manager can be that the parameter estimates reflect the true values.

the more confident the manager can be that the parameter estimates reflect the true values.

the more precisely the parameter estimates the true values.

the less precisely the parameter estimates the true values.

The manager can be 95 percent confident that the true value of the underlying parameters in a regression is not zero if the absolute value of the t-statistic is

less than 1.

less than 2.

greater than 1.

greater than 2.

Which of the following provides a measure of the overall fit of a regression?

t-statistic

F-statistic

P-value

the t-statistic and the P-value

As a general rule of thumb, a manager can be 95 percent confident that the true value of the underlying parameter in the regression is not zero, when the absolute value of the t-statistic is greater than zero.

greater than or equal to 1.

greater than or equal to 2.

equal to zero.

SUMMARY OUTPUT

ANOVA						
	df	SS	MS	F	Significance F	
Regression	C	747851.57	373925.79	402.98	9.89E-31	
Residual	48	D	927.91			
Total	50	792391.11				
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	E	62.13	26.79	1.60E-30	1539.66	1789.51
Price of Roses	-6.68	F	-1.41	1.64E-01	-16.16	2.81
Disposable Income (M)	9.73	0.34	G	1.23E-31	9.04	10.42

Use the regression output to compute the R-square and adjusted R-square (points A and B, respectively).

0.056 and 0.017

0.944 and 0.942

0.944 and -0.428

0.06 and 0.02

SUMMARY OUTPUT

ANOVA						
	df	SS	MS	F	Significance F	
Regression	C	747851.57	373925.79	402.98	9.89E-31	
Residual	48	D	927.91			
Total	50	792391.11				
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	E	62.13	26.79	1.60E-30	1539.66	1789.51
Price of Roses	-6.68	F	-1.41	1.64E-01	-16.16	2.81
Disposable Income (M)	9.73	0.34	G	1.23E-31	9.04	10.42

The residual sum of squares and degrees of freedom due to the regression are 44,539.54 and 2, respectively.

747,851.57, and 98, respectively.

1,540,242.68 and 48, respectively.

indeterminable as there is insufficient information to answer this question.

SUMMARY OUTPUT

ANOVA						
	df	SS	MS	F	Significance F	
Regression	C	747851.57	373925.79	402.98	9.89E-31	
Residual	48	D	927.91			
Total	50	792391.11				
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	E	62.13	26.79	1.60E-30	1539.66	1789.51
Price of Roses	-6.68	F	-1.41	1.64E-01	-16.16	2.81
Disposable Income (M)	9.73	0.34	G	1.23E-31	9.04	10.42

Determine the intercept coefficient (point E) and whether that estimate is statistically significant at the 5 percent level.

1,664.46 and statistically significant since the P-value is less than 5 percent

2.32 and statistically significant since the t-statistic is greater than 2 in absolute value

1,664.46 and statistically insignificant since the P-value is less than 5 percent

2.32 and statistically insignificant since the t-statistic is less than 2 in absolute value

SUMMARY OUTPUT

ANOVA						
	df	SS	MS	F	Significance F	
Regression	C	747851.57	373925.79	402.98	9.89E-31	
Residual	48	D	927.91			
Total	50	792391.11				
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	E	62.13	26.79	1.60E-30	1539.66	1789.51
Price of Roses	-6.68	F	-1.41	1.64E-01	-16.16	2.81
Disposable Income (M)	9.73	0.34	G	1.23E-31	9.04	10.42

Determine the standard error of the estimated slope coefficient for the price of roses (point F) and whether that estimated slope coefficient is statistically significant at the 5 percent level.

9.42 and statistically significant since the t-statistic is greater than 2 in absolute value

9.42 and statistically insignificant since the t-statistic is less than 2 in absolute value

4.74 and statistically insignificant since the P-value is greater than 5 percent

4.74 and statistically significant since the P-value is greater than 5 percent

SUMMARY OUTPUT

ANOVA						
	df	SS	MS	F	Significance F	
Regression	C	747851.57	373925.79	402.98	9.89E-31	
Residual	48	D	927.91			
Total	50	792391.11				
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	E	62.13	26.79	1.60E-30	1539.66	1789.51
Price of Roses	-6.68	F	-1.41	1.64E-01	-16.16	2.81
Disposable Income (M)	9.73	0.34	G	1.23E-31	9.04	10.42

Determine the t-statistic of the estimated slope coefficient for disposable income (point G)

and whether that estimated slope coefficient is statistically significant at the 5 percent level.

3.31 and statistically significant since the t-statistic is greater than 2 in absolute value

0.03 and statistically insignificant since the t-statistic is less than 2 in absolute value

3.31 and statistically insignificant since the P-value is less than 5 percent

28.62 and statistically significant since the P-value is less than 5 percent

SUMMARY OUTPUT

ANOVA						
	df	SS	MS	F	Significance F	
Regression	C	747851.57	373925.79	402.98	9.89E-31	
Residual	48	D	927.91			
Total	50	792391.11				
	Coefficients	Standard Error	t Stat	P-Value	Lower 95%	Upper 95%
Intercept	E	62.13	26.79	1.60E-30	1539.66	1789.51
Price of Roses	-6.68	F	-1.41	1.64E-01	-16.16	2.81
Disposable Income (M)	9.73	0.34	G	1.23E-31	9.04	10.42

From the regression output, the predicted regression line is

$$Q_R^d = 1664.46 - 6.68P_R + 9.73M$$

$$P_R = 1664.46 - 6.68Q_R + 9.73M$$

$$Q_R^d = 2.32 - 6.68P_R + 9.73M$$

indeterminable as there is insufficient information to answer the question.

Suppose a regression with 51 observations returns a regression sum of squares of 56,000 and a total sum of squares of 250,000. The corresponding R^2 is

0.776.

0.224.

0.345.

0.671.

Suppose a regression with 51 observations returns a regression sum of squares of 56,000 and a total sum of squares of 250,000. The associated residual sum of squares is

194,000.

200,000.

150,000.

120,000.

Answer Key

Test name: Ch1_Manual Managerial Economics and Business Strategy_10e

B

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