Weekly Quiz #10

Problem 1.

Given $R(x) = 5x - 0.02x^2$, $C(x) = 145 + 1.1x$, find the marginal profit function.

Answers *

- $-0.02 + 145/x^2$
- ✓ $-0.04x + 3.9$
- $-0.02 - 145/x^2$
- cannot be determined

Problem 2.

Given revenue function $R(x) = -0.03x - 3x^3$, find the marginal revenue function.

Answers *

- $-0.03 - 3x^2$
- $-0.03 - 3x^2$
- ✓ $-0.03 - 9x^2$
- $-0.03x + 9x^2$

Problem 3.

Given cost function C(x) = 175 – 0.8x. What is the marginal cost function?

Answers *

- [ ] $175/x - 0.8$
- [ ] $175x - 0.8x^2$
- [ ] 0.8
- [x] -0.8

Problem 4

The production cost per week for producing x widgets is given by, $C(x) = 500 + 350x - 0.09x^2$ for $0 \leq x \leq 1000$.

What is the marginal cost at $x = 300$?

Answers *

- [x] 296
- [ ] 97400
- [ ] 325
- [ ] cannot be determined

Problem 5.

The production cost per week for producing x widgets is given by, $C(x) = 500 + 350x - 0.09x^2$ for $0 \leq x \leq 1000$.

What is the cost to produce the $301st$ widget?

Answers *

- [ ] 97695
- [ ] 256
- [ ] 97656
- [x] 296

Problem 6.

Find $y' = dy/dx$ if $x^2 - y^2 = 1$.

Answers *

- [ ] 2x/y
- [x] x/y
- [ ] y/x
- [ ] cannot be determined

Problem 7.

Find the derivative of y from the implicit function: $3xy + y^2 = 0$.

Answers *

- [x] $-3y/(3x + 2y)$
- [ ] $3x/2y$
- [ ] $-2y/3x$
- [ ] $-3x/2$

Problem 8.

Find the derivative of y given that $x^2 + 2xy + y^2 = 1$.

Answers *

- [x] -1
- [ ] -x
- [ ] -1/(x + y)
- [ ] x/y

Problem 9.

Suppose that a 2% increase in price results in a 6% decrease in quantity demanded. Own-price elasticity of demand is equal to:

Answers *

- [ ] 1/3
- [ ] 6
- [ ] 2
- [x] 3

Problem 10.

The price decreases from £2,000 to £1,800. Quantity demanded per year increases from 5000 to 6000 units. Which of the following is correct? (use the definition in lecture note or the textbook)

Answers *

- [ ] The price elasticity of demand is -1
- [ ] The good is inferior
- [ ] Income elasticity is + 0.5
- [x] Income elasticity is + 2

Problem 11

The price of a commodity rises from 5 to 6 and as a result its demand falls from 100 to 80 units. Find the price elasticity of demand using percentage method

Answers *

- [ ] 0.5
- [ ] 2
- [x] 1
- [ ] undefined

Problem 12.

When the price decreases from $12 to $6 (50%), the quantity of demand increases from 40 to only 50 (25%). The elasticity coefficient is

Answers *

- [ ] 0.6
- [ ] .33
- [x] 0.5
- [ ] 2