

# **Motorcycle Helmets with Bluetooth (A):**

## **Pricing Bluetooth Chips**

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This case was written by Michele Hibon, Lecturer, and Ilia Tsetlin, Assistant Professor of Decision Sciences. It is intended to be used as a basis for class discussion rather than to illustrate either effective or ineffective handling of an administrative situation.

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This pre-release version may be used for teaching purposes but it has not yet received an official case number by the European Case Clearing House.

Having just started his consulting career, Gregory had to advise the company assembling various motorcycle gadgets, in particular motorcycle helmets with Bluetooth built-in. The main question that Gregory had to answer was a market price of Bluetooth chips. He had two reports on his desk: one from marketing department, estimating monthly demand (Table 1) of Bluetooth chips, and one from production department, estimating monthly supply (Table 2). From his undergrad microeconomics, Gregory recalled that having demand and supply curves should be sufficient to find a market price, but he was somewhat missing an exact way of doing it.

Gregory gave a call to his classmate, and help arrived immediately: “Dude, it’s very simple. Just see where supply crosses demand, and that’s all you need. Sorry, gotta run.” Now Gregory had the direction to go, but when he plotted demand and supply, they didn’t really cross. Ah, if it were so that marketing and production departments would give him their estimates over wider range of prices, the problem would be solved, but Gregory had neither time nor budget to ask for additional reports... Now everything depended on his extrapolation skills. He hoped that with the use of Excel it won’t be a big problem.

Table 1. Price - Demand	
Price $p$	Demand $D$
91.00	1,000
74.63	2,000
65.06	3,000
58.27	4,000
53.00	5,000

Table 2. Price - Supply	
Price $p$	Supply $S$
9.00	1,000
23.21	2,000
31.53	3,000
37.42	4,000
42.00	5,000

**Assignment**

- a) Plot the graphs for  $D$  as a function of  $p$  and  $S$  as a function of  $p$ .
  - b) Plot the graphs for  $\ln(D)$  as a function of  $p$  and  $\ln(S)$  as a function of  $p$ .  
 “ln” stays for “natural logarithm”, i.e.,  $\ln(D)=\log_e(D)$ .
- Hint: for questions c-e you will need to estimate the relationships  $D(p)$  and  $S(p)$  as  $\ln(D) = a+bp$ ,  $\ln(S) = c+dp$ .*
- c) Estimate the supply and the demand at a price level of \$50.
  - d) Does a price level of \$50 represent a stable condition, or is the price likely to increase or decrease?
  - e) Find the equilibrium point. Write the equilibrium price to the nearest cent and the equilibrium quantity to the nearest unit.