Three Competition Problems

Quantity	Firm A	Firm B	Firm C
1	1	1	1
2	3	4	2
3	6	8	4
4	10	13	7
5	15	19	11
6	21	26	16
7	28	34	22
8 and above	28 + 12 per unit	34+ 13.5 per unit	22+ 10.5 per unit

Problem I

The Facts

- Three firms. Cost functions are as shown.
- Demand is

  $Q = 22.5 - 1.5P$
- Compute P, Q

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7	28	34	22
8 and above	28 + 12 per unit	34+ 13.5 per unit	22+ 10.5 per unit

The Facts

- Three firms. Cost functions a… shown.
- Demand is

  $Q = 22.5$ …
- Compute P, Q

$P = 5, Q = 15$

$Q_A = 5, Q_B = 4, Q_C = 6$

Quantity	Firm A	Firm B	Firm C
1	1	1	1
8 and above	28 + 12 per unit	34+ 13.5 per unit	22+ 10.5 per unit

Problem II

The Facts

- A new technology is about to reduce the cost of making the product to $10
- The cost structure for existing plants is as shown:

Quantity	Total Cost
0	11
1	22
2	26
3	36
4	52
5	75

The Facts

- 15,000 units of this product are sold annually. Each $1 drop in price would increase annual demand by 2,000 units.
-

shown:

Quantity	Total Cost
0	11
1	22
2	26
3	36
4	52
5	75

Questions

- What will be the price of the product when the new innovation comes on the market? What will be the total market when the new innovation comes on the market?
- Over time, current plants will wear out and leave the industry. When 3,000 remain, what will be the annual production using the new technology?

Questions

- What will be the price of the product when the new innovation comes on the market? What will be the total market when the new innovation comes on the market?

$10

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ndustry. When 3,000 remain,
what will be the annual production using the new technology?

Questions

$10

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- Over time, current plants will wear out and leave the industry. When 3,000 remain,

19000

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Questions

$10

10000

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19000

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comes on the arket?

- Over time, current pla ts will wear out and leave the industry. When 3,000 remain, what will be the annual production using the new technology?

Problem III

The Basics

- Demand is
  Q = 3900 – 100P
- What level of output minimizes AC?
- What will be the price and total sales of widgets?
- How many plants ?

Quantity	Total Cost
1	33
2	42
3	54
4	78
5	105

Answers

- Demand is
  Q = 3900 – 100P
- What level of output minimizes AC? **3**
- What will be the price and total sales of widgets?
  $18, 2100
- How many plants ? **700**

Quantity	Total Cost
1	33
2	42
3	54
4	78
5	105

End