

2.9 Profit Maximization Example 1

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$$P = 15 - q/20 \quad C = 100 + 5q$$

- 1) write $\pi(q)$
- 2) find MR, MC
- 3) find P^*, q^*, π^*
- 4) illustrate

$$1) \pi = (15 - q/20)q - 5q - 100$$

$$2) MR = 15 - q/10$$
$$MC = \text{derivative } 100 + 5q = 5$$

$$3) 15 - q/10 = 5 \Rightarrow q = 100$$
$$P = 15 - 100/20 \Rightarrow P = 10$$
$$R = 10 \cdot 100 = 1000$$
$$C = 100 + 5(100) = 600$$
$$\pi = 1000 - 600 = 400$$

