Monopoly

$$\max_y \quad r(y) - c(y)$$

$$FOC: \quad MR(y) = MC(y)$$

$$r(y) = p(y) \cdot y$$

$$MR(y) = \frac{d}{dy} r(y) =$$

$$= \frac{d}{dy} p(y) \cdot y + p(y) \cdot \frac{d}{dy} y = p'(y) \cdot y + p$$

$$\frac{\Delta r}{\Delta y} = p + \frac{\Delta p}{\Delta y} \cdot y$$

Monopoly

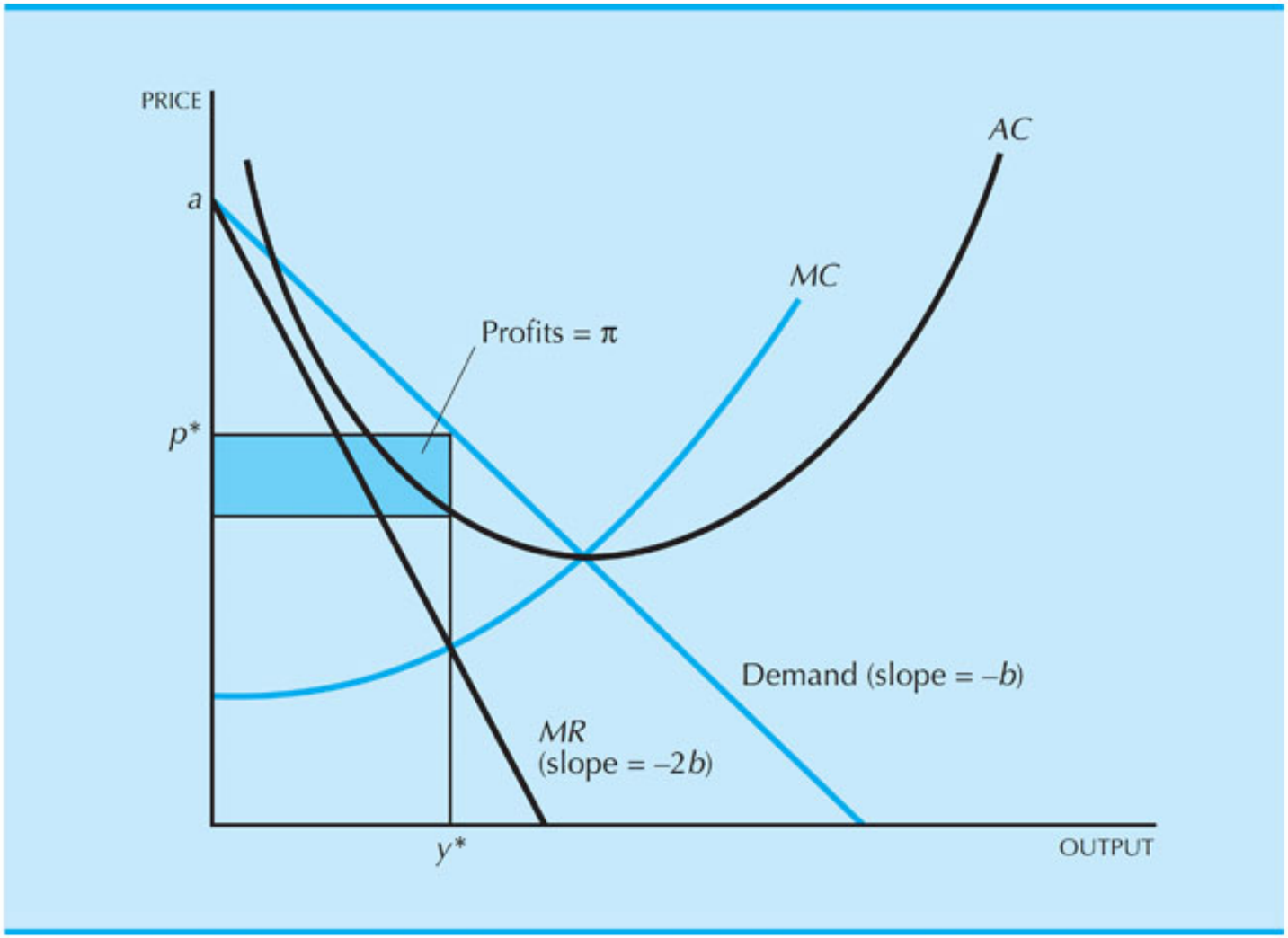

Figure 25.1

Marginal revenue

$$\begin{aligned}
\frac{\Delta r}{\Delta y} &= p + \frac{\Delta p}{\Delta y} \cdot y \\
\frac{\Delta r}{\Delta y} &= p \cdot \left(1 + \frac{\Delta p}{\Delta y} \cdot \frac{y}{p}\right) = \\
&= p \cdot \left(1 + \frac{1}{\frac{\Delta y}{\Delta p} \cdot \frac{p}{y}}\right)
\end{aligned}$$

$$\begin{aligned}
MR(y) &= p \cdot \left(1 + \frac{1}{\epsilon_p}\right) = \\
&= p \cdot \left(1 - \frac{1}{|\epsilon_p|}\right)
\end{aligned}$$

Deadweight loss of monopoly

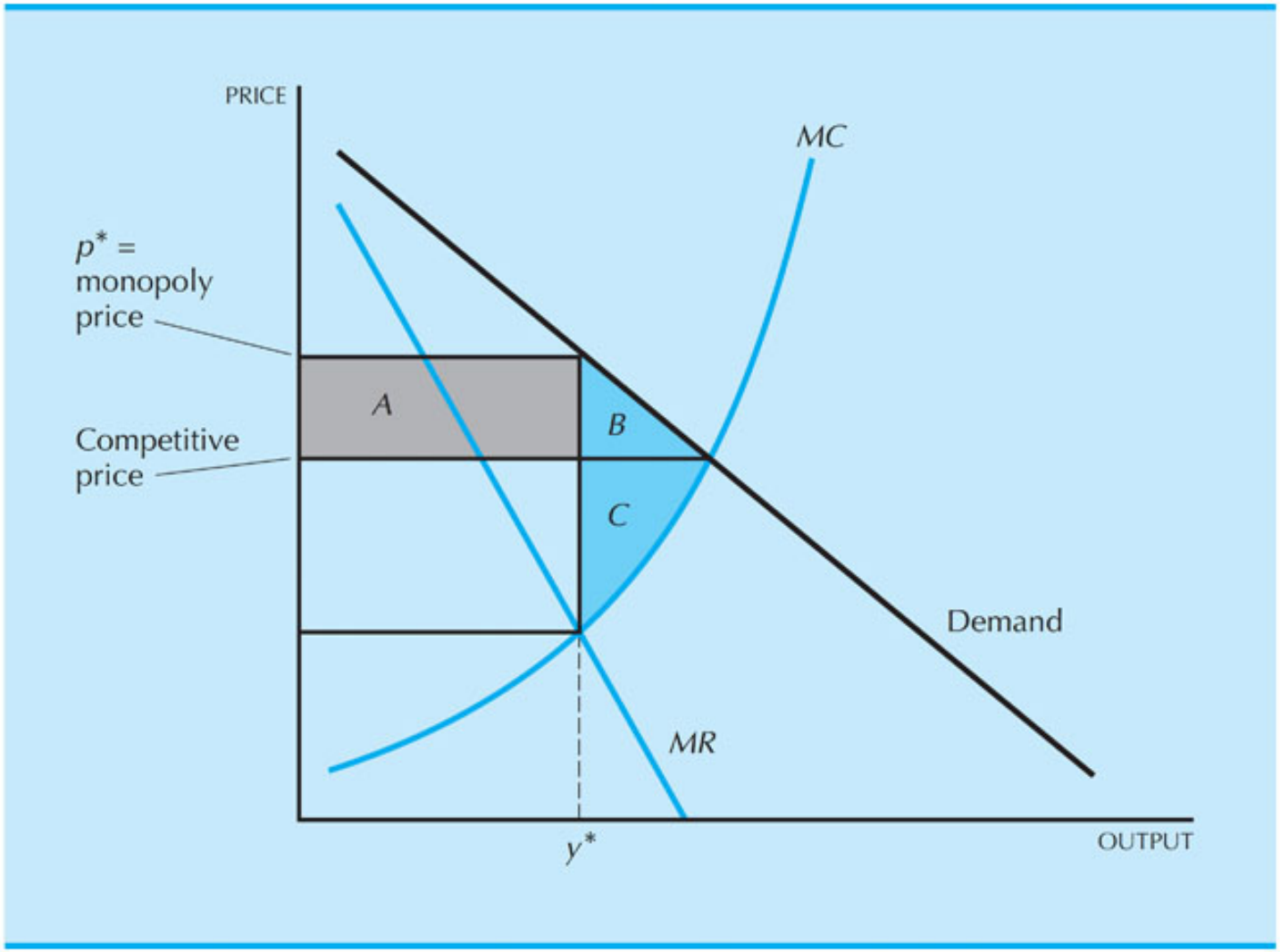

Figure 25.5

Natural monopoly

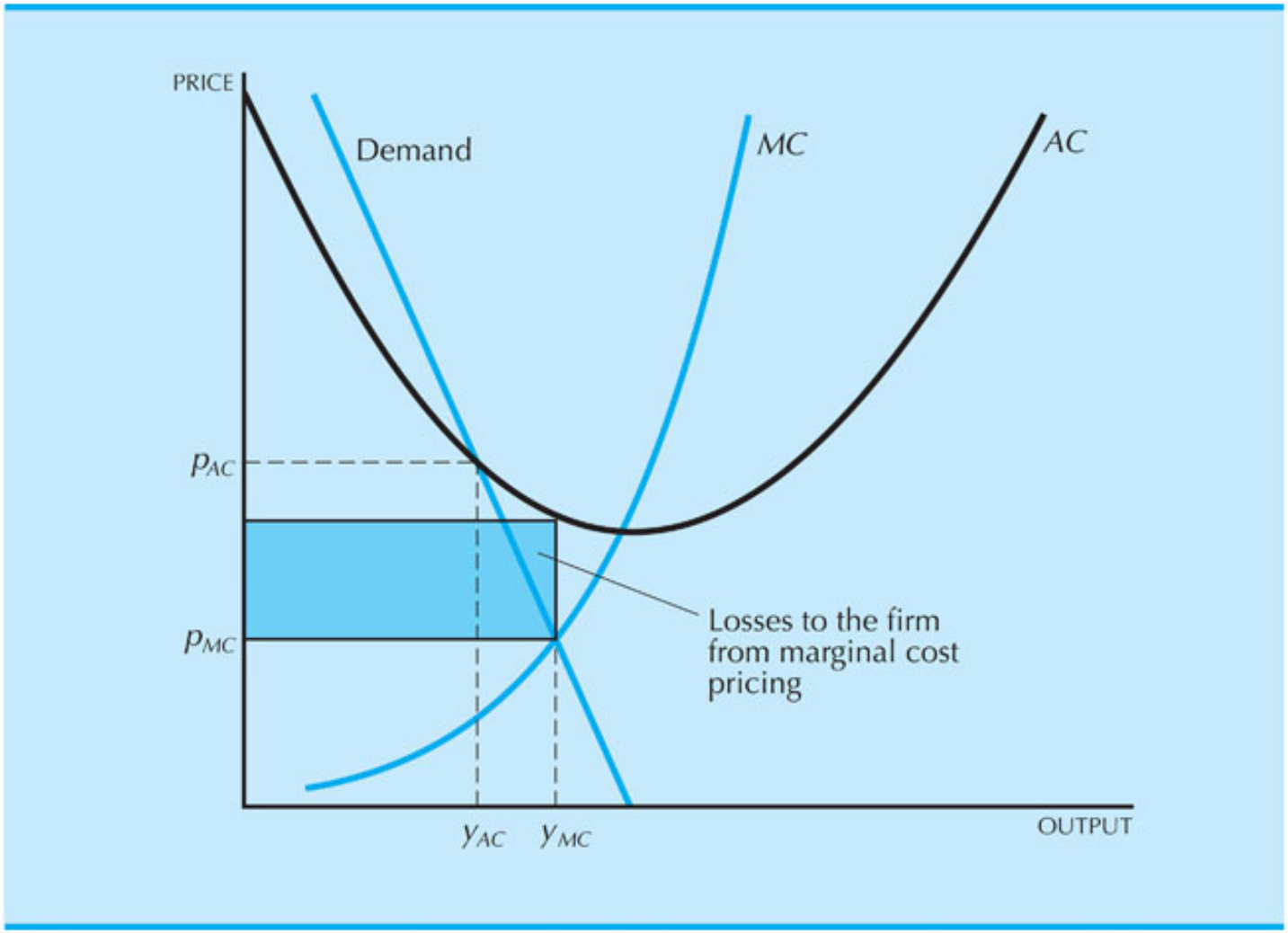

Figure 25.6