Cost Curves for $C(q) = 10 + 5q^2$

- $MC = 10q$
- $AC = \frac{10}{q} + 5q$
- $AVC = \frac{5}{q}$
- $AFC = \frac{10}{q}$

Image by Jaki King (designbyjaki.com) for MIT OpenCourseWare
Figure 6–2

Isocost Lines

K, Units of capital per year

$L$, Units of labor per year

$15 = \frac{150}{10}$

$10 = \frac{100}{10}$

$5 = \frac{50}{10}$

$\frac{50}{5} = 10$

$\frac{100}{5} = 20$

$\frac{150}{5} = 30$

$50\text{ Isocost}$

$100\text{ Isocost}$

$150\text{ Isocost}$

Image by Jaki King (designbyjaki.com) for MIT OpenCourseWare
Figure 6-3

Cost Minimization

$\sqrt{12.5}$ Isoquant

$5 = \frac{50}{10}$

$K = 2.5$

$L = 5$

$\frac{50}{5} = 10$

$L$, Units of labor per year

$K$, Units of capital per year

Image by Jaki King (designbyjaki.com) for MIT OpenCourseWare
Figure 6–4

Cost Minimization with an Increase in Wages

\[ K, \text{ Units of capital per year} \]
\[ L, \text{ Units of labor per year} \]

\[ \sqrt{12.5} \text{ Isoquant} \]

\[ K_y = 3.5 \]
\[ K_x = 2.5 \]

\[ L_y = 3.5 \quad L_x = 5 \]

\[ w = 10 \quad w = 5 \]

\[ $50 \text{ Isocost} \]

Image by Jaki King (designbyjaki.com) for MIT OpenCourseWare
Figure 6-5a

Long-Run Expansion Path (Linear)

$K$, Units of capital per year

$L$, Units of labor per year

Isoquants:
- $\sqrt{50}$ Isoquant
- $\sqrt{12.5}$ Isoquant
- $\sqrt{112.5}$ Isoquant

Expansion Path

Image by Jaki King (designbyjaki.com) for MIT OpenCourseWare
Figure 6–5b

Long-Run Expansion Path
(Capital Becomes Less Productive)

$K$, Units of capital per year

$L$, Units of labor per year

Expansion Path

Image by Jaki King (designbyjaki.com) for MIT OpenCourseWare
Figure 6-5c

Long-Run Expansion Path
(Labor Becomes Less Productive)

$L$, Units of labor per year

$K$, Units of capital per year

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