

Q3

Cobb-Douglas  
production  
function

$$Y = K^\alpha (L \cdot E)^{1-\alpha} \quad \alpha < 1$$

$$\frac{Y}{L} = \frac{K^\alpha (L \cdot E)^{1-\alpha}}{L}$$

$$\frac{Y}{L} = K^\alpha \cdot L^{1-\alpha} \cdot E^{1-\alpha} \cdot L^{-1}$$

$$\frac{Y}{L} = K^\alpha \cdot L^{-\alpha} \cdot E^{1-\alpha}$$

 $\frac{K}{L}$  form

$$\frac{Y}{L} = \left(\frac{K}{L}\right)^\alpha \cdot E^{1-\alpha}$$

$$\frac{Y}{L} = \left(\frac{K}{L} \cdot \frac{Y}{Y}\right)^\alpha \cdot E^{1-\alpha}$$

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$$\frac{Y}{L} = \left(\frac{K}{Y}\right)^\alpha \cdot \left(\frac{Y}{L}\right)^\alpha \cdot E^{1-\alpha}$$

$$\frac{1}{1-\alpha} \left(\frac{Y}{L}\right)^{1-\alpha} = \left(\frac{K}{Y}\right)^\alpha (E)^{1-\alpha} \quad \frac{1}{1-\alpha}$$

 $\frac{K}{Y}$  form

$$\frac{Y}{L} = \left(\frac{K}{Y}\right)^{\frac{\alpha}{1-\alpha}} \cdot E$$