

Cooleconomics
Macroeconomics

Study Question: Productivity

An economy has aggregate production function $Y = AK^aN^b$
The economy has labor supply equation $N_s = 16.6666666667(w/p)$

Where $A = 10$, $K = 100$, $a = .4$ and $b = .6$, and $p = 1$

- a) Calculate GDP when $N = 10$, $N = 100$, and $N = 1000$
- b) Calculate MPN when $N = 10$, $N = 100$, and $N = 1000$
- c) Graph three points on this economy's labor demand curve: where $N = 10$, $N = 100$, and $N = 1000$
- d) What is the equilibrium level of labor used in this economy? (Hint: it is either $N=10$, $N = 100$, or $N = 1000$). Demonstrate your answer with a calculation.
- e) Calculate the marginal product of capital at the equilibrium level of labor.

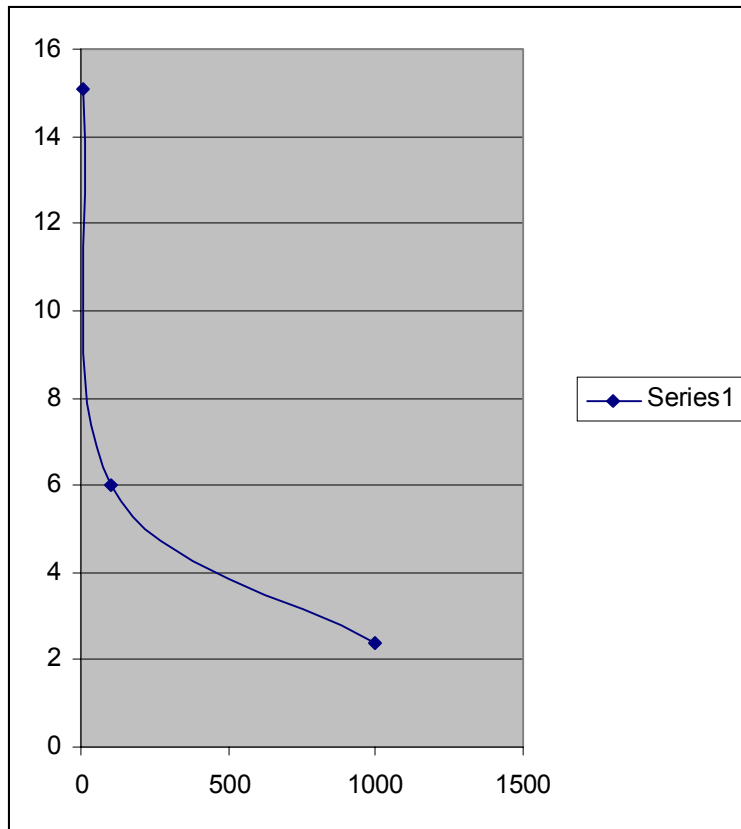
a)

251.1886
1000
3981.072

b)

15.07132
6
2.388643

c)



d) At $N = 100$ and $w = 6$, both labor demand and labor supply are 100.

e) 4