

**Problem 1.** Match things.

- (a) economic growth
  - (b) real GDP
  - (c) average labor productivity
  - (d) real GDP divided by the population
  - (e) technological progress
  - (f) human capital
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- (i) long-term increases in the aggregate level of output
  - (ii) the index economists use to represent the aggregate level of output
  - (iii) the amount of output produced by one unit of labor, on average
  - (iv) real GDP per capita
  - (v) increase in know-how related to the production of goods and services
  - (vi) knowledge and skills possessed by a person

**Problem 2.** Match more things.

- (a) knowledge capital
- (b) neoclassical theory
- (c) new growth theory
- (d) endogenous technological progress

- (i) total stock of knowledge possessed by the whole society
- (ii) growth theory in which technological progress is exogenous
- (iii) growth theory in which technological progress is endogenous
- (iv) technological progress that happens because of investments in research and development activities

**Problem 3.** *True or False.* One way to increase labor productivity is to increase the amount of capital per worker.

**Problem 4.** *True or False.* One way to increase capital per worker is to encourage saving by households.

**Problem 5.** The difference between physical/human capital and knowledge capital is that

- (a) physical and human capital are nonrival and are subject to diminishing returns
- (b) physical and human capital are rival and not subject to diminishing returns
- (c) knowledge capital is rivalrous and not subject to diminishing returns
- (d) knowledge capital is nonrivalrous and not subject to diminishing returns
- (e) none of the above

**Problem 6.** Classical economic theory says that the per-worker production function should exhibit diminishing returns. What would a graph of this look like?

What does the graph look like according to the data? How can we explain this shape?

**Problem 7.** Which of the following are long-run factors of growth?

- (a) capital accumulation
- (b) technological progress
- (c) population growth
- (d) amount of natural resources
- (e) all of the above
- (f) none of the above

**Problem 8.** Consider an economy with the following data:

population: 100

labor force: 80

employed: 60

real GDP: 24,000

Find the following (assume population is civilian population):

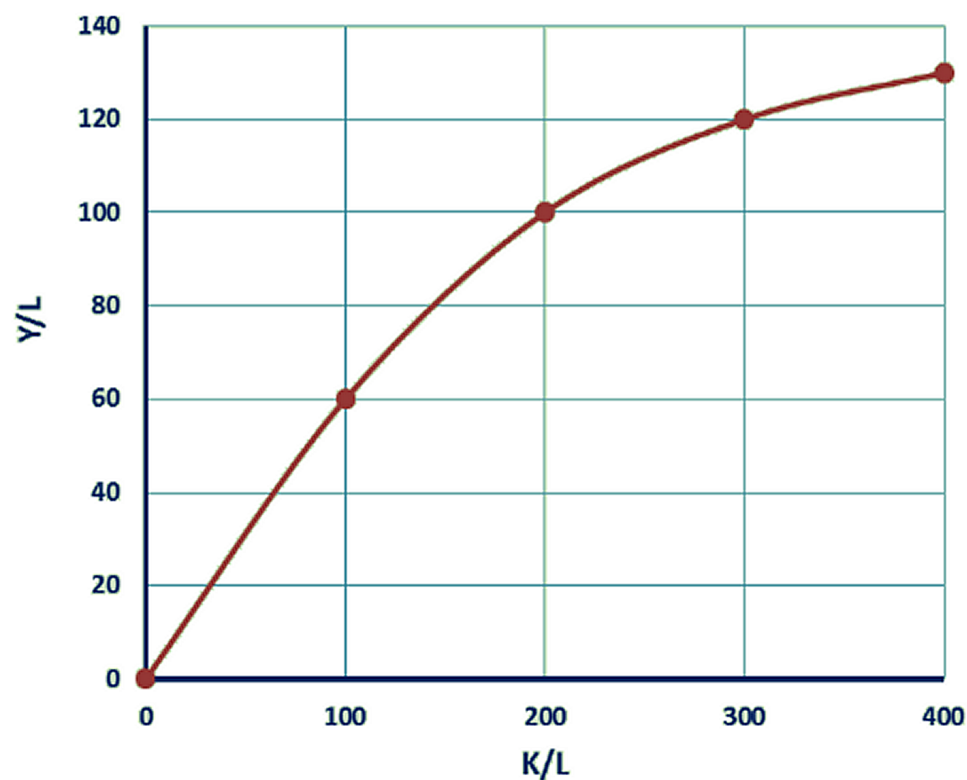
(a) labor force participation rate

(b) employment rate

(c) average labor productivity

(d) real GDP per capita

**Problem 9.** In a country, the labor force participation rate is 75%, the employment rate is 90%, and the average labor productivity is 40,000 units of output. In this country, the output per capita equals what?

**Problem 10.**

LFPR: 50%

employment rate: 90%

physical capital  $K$ : 300,000

employed people  $L$ : 1,500

What is the average labor productivity? What is GDP per capita?