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

(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.

population:	$100,000,000$
labor force:	$80,000,000$
employed:	$60,000,000$
real GDP:	$2,400,000,000,000$

Find the following (assume population is civilian population):

(a) labor force participation rate

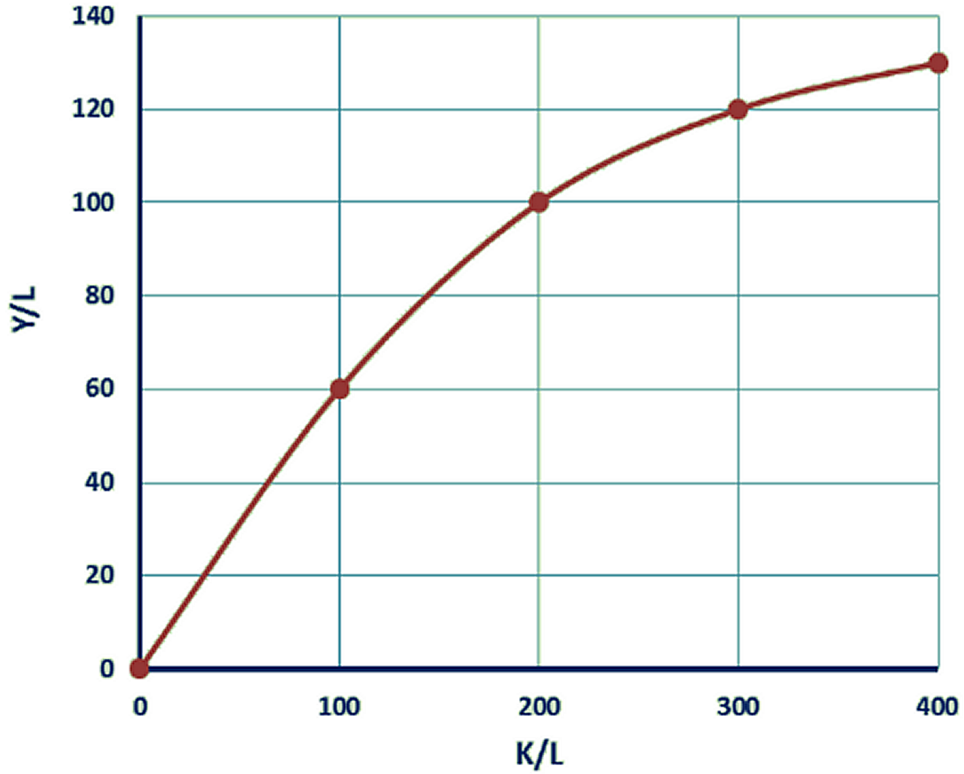
(b) employment rate

(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?

Problem 11. In general, if the Fed increases the supply of money by 5%, which of the following statements can we claim to be true with certainty? (In general means, do not make *any* assumptions about *anything*.)

(a) The price level will increase by 5%, but the real GDP will remain the same.

(b) The real GDP will increase by 5%, but the price level will remain the same.

(c) The Nominal GDP will increase by 5%.

(d) We cannot claim any of the above to be true with certainty.

Problem 12. Suppose the velocity of circulation of money is constant and equal to 5. If the Fed increases the supply of money by 5%, which of the following statements can we claim to be true with certainty?

(a) P will increase by 5%, Y will remain the same.

(b) Y will increase by 5%, P will remain the same.

(c) The nominal GDP will increase by 5%.

(d) None of the above.

Problem 13. Suppose potential GDP is $Y_p = 10000$. To fight the ongoing inflation the central bank reduces the supply of money by 30%. The long-run effect of this policy on the real GDP and the general price level will be...?

Problem 14. $M = \$100,000$ and $V = 5.00$. Suppose that, after the Fed increases the supply of money by 5%, the velocity drops to $V = 4.90$. What will be the rate of increase in nominal GDP?

Problem 15. Suppose inflation grows at 5% per year and real GDP grows at 3% per year. Find the long-run rate of inflation.