OMG MIDTERM 2 IS ON MONDAY!!!!11

- It is cumulative! The horror!
- Bring the same stuff as last time.
- Same spiel as last time—"know everything."
- Don't be your own worst enemy. Be honest with yourself about whether you truly understand something before moving on—just because you got a 10 on the homework doesn't necessarily mean you're prepared for the exam. And the exam is more important than the homework.

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
g. diminishing returns

i. long-term increases in the aggregate level of output
ii. the index economists use to represent the aggregate level of
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
vii. principle that additional capital or labor add less to output than previous ones.

Problem 2. The real GDP in a year is $GDP1$, and the following year it is $GDP2$. What is the growth rate between these two years?

Problem 3. 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 4. *True or False.* One way to increase labor productivity is to increase the amount of capital per worker.

Problem 5. *True or False.* One way to increase capital per worker is to encourage saving by households.

Problem 6. 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 7.

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

Find the following:

(a) labor force participation rate

(b) employment rate

(c) average labor productivity

(d) real GDP per capita

Physical and human capital are

- **rivalrous.** Its use by one agent prevents another agent from simultaneously using it.

  If a farmer A is currently using this tractor, then farmer B cannot also use the same tractor.

  A scientist can work on my project or your project, but not on both at the same time.

- **subject to diminishing returns.** Every additional unit generates less new output than did the previous unit.

  Adding another tractor will make the farmer more productive, but not as much as the first tractor did.

  Adding another scientist will make your project move more quickly, but it won't speed things up as much as adding the first scientist did.

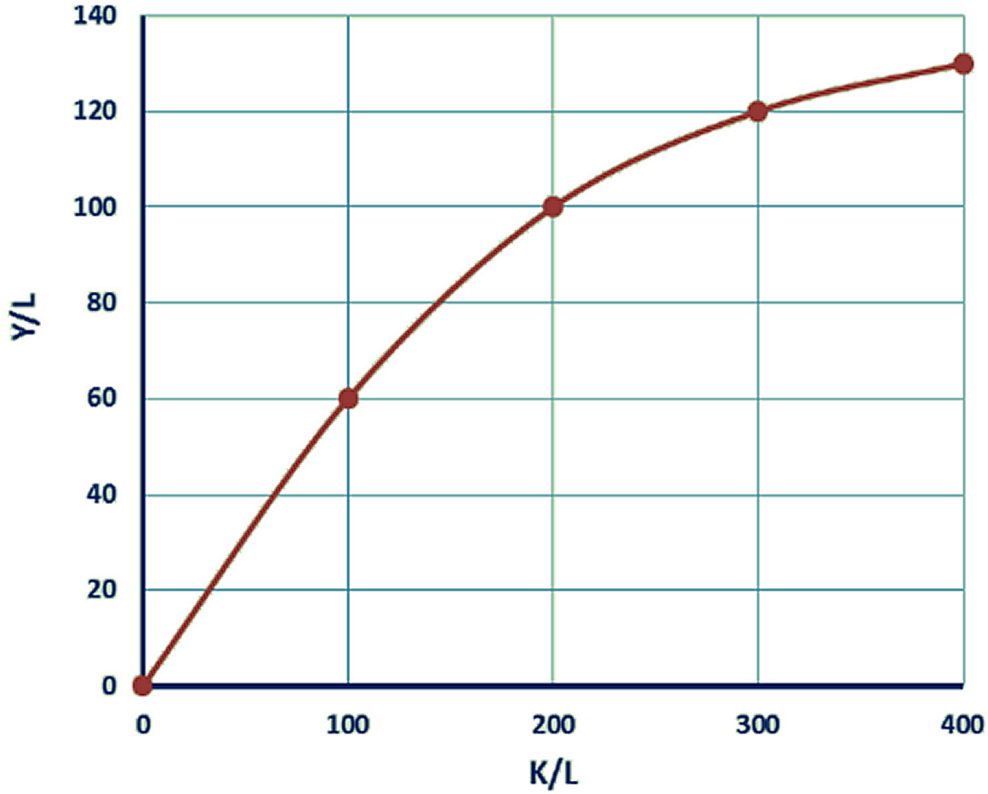
Knowledge capital is

- **non-rivalrous.** Me using one idea does not prevent you from using the very same idea.
- **not subject to diminishing returns.** Me using an idea doesn't make the same idea less useful to someone else.

Problem 8. 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 9.



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 10. Which of the following are long-run factors of growth?

(a) capital accumulation

(b) technological progress

(c) population growth

(d) amount of natural resources