



We express special gratitude to the following countries for suggesting some of the questions below: Albania, Bangladesh, Brazil, Canada, Colombia, Croatia, Greece, Iran, Kyrgyzstan, Macau, Nepal, Nigeria, North Macedonia, Republic of Korea, Sri Lanka, Taiwan, Thailand. Suggestions were collected and processed by the IEO Executive Board Academics Department and IEO 2023 Problem Committee.

## Answers

### 1. Empirical Economics

Which of the following is an example of a field experiment?

#	Answers	
A	To conduct clinical trials of a new medication, patients are randomly divided into two groups	
B	To see which textbooks are more efficient to study math, the government obliges half of the country's schools to use textbook A and the other half to use textbook B	Correct
C	Different regions of a country may have different fines for speeding, so one can study how changes in fines affect drivers' behavior	
D	None of the other options is correct	

### 2. Environment

To achieve the goal of carbon reduction, the government of a certain country has required two domestic companies, A and B, to reduce 100 units of carbon emissions in total, assigning each of them the reduction by 50 units. For A, the marginal cost of reducing emissions is  $3q_a$  dollars, while for B, it is  $2q_b$  dollars. The companies can trade their reduction amounts between each other at the competitive price. How much will one of the companies pay the other in equilibrium?

#	Answers	
A	400	
B	486	
C	1200	Correct
D	1500	

### 3. Finance

Suppose the U.S. one-year interest rate is 3% per year, while a foreign country has a one-year interest rate of 7% per year. Ignoring risk and transaction costs, a U.S. investor should invest in foreign bonds if the expected yearly rate of depreciation of the foreign currency is...

#	Answers	
A	Less than 4%	Correct
B	Less than 6%	
C	More than 4%	
D	Positive	

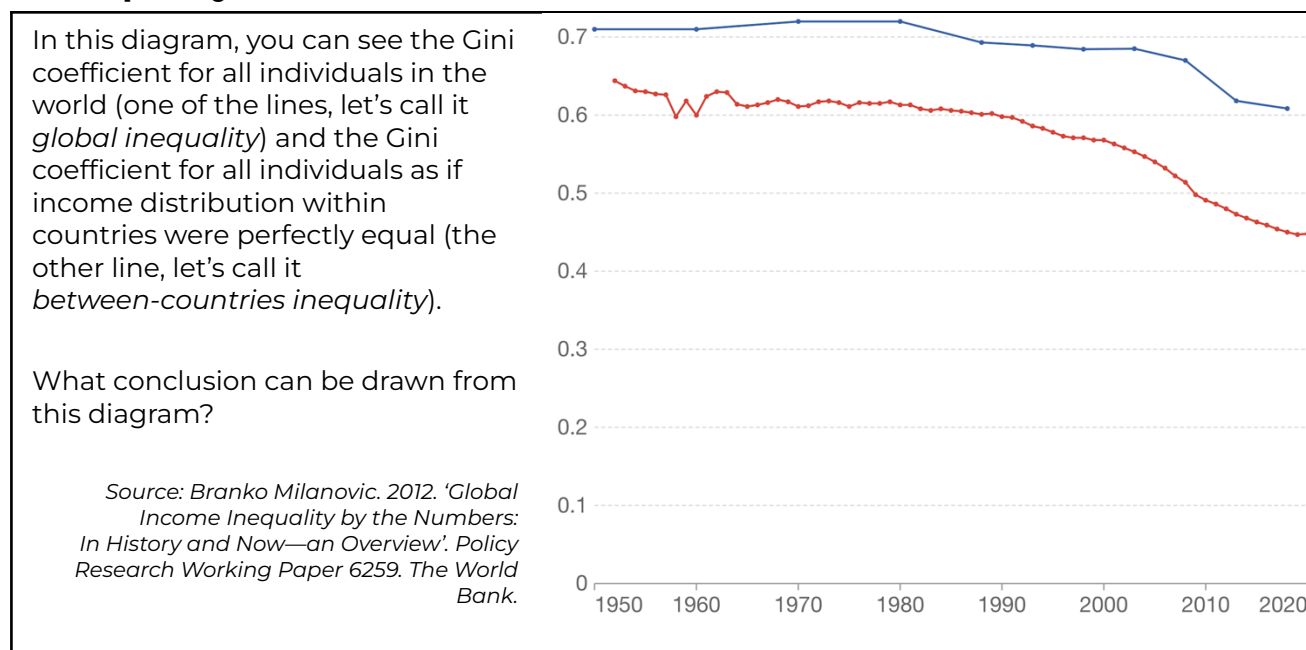
## 4. Finance

During a financial crisis, what potential risks can arise in the banking system?		
#	Answers	
A	Bank failures	
B	Liquidity shortages	
C	Deposit flights	
D	All other options are correct	Correct

## 5. Inequality

The data used to measure and make conclusions about economic inequality come from various sources. Mark the correct statement about these sources.		
#	Answers	
A	Sociological surveys are good at providing data about the income of the richest quintile of the population	
B	The administrative data about taxes paid fail to accurately reflect the income of the poorest quintile of the population	Correct
C	The data about having a refrigerator at home can provide a correct impression of economic inequality in developed countries	
D	The data on received social security benefits can be used as a good proxy for income in the whole distribution	

## 6. Inequality



#	Answers	
A	Around 1960, global inequality was less volatile than between-countries inequality	
B	Within-country inequality in the world has been generally rising in the recent decades	Correct

#	Answers	
C	Most of inequality in the world is between different individuals in the same country, rather than between countries	
D	None of the other conclusions can be drawn	

## 7. International Trade

Which of the following effects would be the result of introducing a quota on an imported good below the market-clearing quantity? Consider all markets to be perfectly competitive.

#	Answers	
A	The domestic supply curve shifts downwards	
B	The domestic demand curve shifts upwards	
C	Some of the domestic consumers' surplus transfers to the domestic producers	<i>Correct</i>
D	Importers' profit decreases	

## 8. Macroeconomic Data

What is the closest estimate of the combined share of the two countries with the largest GDP in the whole World's GDP?

#	Answers	
A	5%	
B	15%	
C	35%	<i>Correct</i>
D	65%	

## 9. Macroeconomic Data

Consider an economy that produces only three types of goods and services: cars, bottles of wine, and haircuts. In the table below, you can find the price (in dollars) and production (in units) data for 2021 and 2022.

	$P_{21}$	$Q_{21}$	$P_{22}$	$Q_{22}$
Cars	5,000	100	5,200	120
Wine	10	500	9	450
Haircuts	15	400	15	450

Using nominal and real GDP calculations (with 2021 being the base year), choose the correct statement about the economy in 2022 compared to its state in 2021.

#	Answers	
A	Real GDP grew by less than 10%	
B	The country experienced deflation	
C	Nominal GDP more than doubled	
D	Nominal GDP growth can be explained by the growth of output to a greater extent than by the growth of prices	<i>Correct</i>

## 10. Macroeconomic Policies

The government is concerned with the existing trade deficit. In coordination with the Central Bank, it considers measures to alleviate the problem. Which of the following policies would help to achieve this goal?

#	Answers	
A	Lowering prime interest rates	
B	Tax deductions for exporting firms	
C	Buying government bonds	
D	All mentioned policies will help to achieve the goal	Correct

## 11. Monopoly and tax

A monopolist with a demand function  $Q = 120 - P$  and total cost  $TC = 2q^2$  faces per-unit tax of \$12. By how much the consumer price will increase?

#	Answers	
A	\$3	
B	\$6	
C	2%	Correct
D	10%	

## 12. Oligopoly

Consider a Cournot duopolistic market with a linear demand curve ( $Q = a - bP$ ), where firms X and Y compete by simultaneously choosing their output level ( $q_x$  and  $q_y$  respectively). Firms X and Y have constant marginal costs,  $C_x$  and  $C_y$  and zero fixed costs. Which of the following chains of events is in line with this model?

#	Answers	
A	If $C_x$ increases $\Rightarrow C_y$ decreases	
B	If $C_x$ decreases $\Rightarrow q_y$ decreases and $Q$ increases in equilibrium	Correct
C	If $a$ increases $\Rightarrow Q$ decreases and $P$ increases in equilibrium	
D	If $C_y$ increases $\Rightarrow q_y$ increases in equilibrium	

## 13. Competition

Let's suppose we observe two competitors in the automobile industry, i.e. BMW and Mercedes. All else equal, if Mercedes reduces the price of its cars, we should expect that

#	Answers	
A	BMW's supply curve will move to the left and the price of BMW cars will increase	
B	BMW's supply curve will move to the right and the price of BMW cars will decrease	
C	BMW's demand curve will move to the left and the price of BMW cars will decrease	Correct
D	BMW's demand curve will move to the right and the price of BMW cars will increase	

## 14. Market Failure

We often observe that people with health insurance demand more pharmaceutical products than they actually need. This phenomenon is known as:

#	Answers	
A	adverse selection	
B	moral hazard	Correct
C	an efficient free market outcome	
D	profit maximization	

## 15. Labor Market

Let's suppose that Catherine just lost her job and found a new one right away but at a lower wage rate. Based on the neoclassical theory for labor supply, the substitution effect of the lower wage for Catherine will lead her to:

#	Answers	
A	work less hours than before	Correct
B	work more hours than before	
C	work the same hours as before	
D	exit the labor market and thus, supply zero hours of work	

## 16. Production Frontier

Farms A, B and C produce only mangoes (M) and papayas (P). The production possibility frontier of each farm is as follows:

$$\text{Farm A: } M_A + P_A = 100$$

$$\text{Farm B: } 2M_B + 3P_B = 300$$

$$\text{Farm C: } M_C + 2P_C = 600$$

What is the maximum number of mangoes that they can produce together if they want to produce at least 300 papayas?

#	Answers	
A	200	
B	300	
C	400	Correct
D	600	

## 17. Banks, Money and the Credit Market

Mrs Smith has a nominal income of US\$60,000 per year, taxed by 40%. Her wealth includes some equipment, which depreciates by US\$2,500 every year. Mrs Smith decides to spend 70% of her disposable income on consumption and to invest the rest on equipment. Her equipment's value will increase by:

#	Answers	
A	US\$57.500	
B	US\$10.800	
C	US\$10.500	
D	US\$8.300	Correct

## 18. Market power

If a producer has market power (that is, with her actions she can influence the market price), what can we say about the quantity produced?

#	Answers	
A	It is equitable	
B	It is efficient	
C	It maximizes consumer surplus	
D	None of the other answers is correct	Correct







## 19. Fluctuations and macroeconomic policy

In the case of recession described with the letter U:

#	Answers	
A	The economy quickly bounces back to normal.	
B	It is a case of a back-to-back recession.	
C	There is a slow recovery with eventual return to normal.	Correct
D	There is a long recession with no return to normal.	

## 20. Game Theory

Consider the Rock-Paper-Scissors game with the following payoffs:

			
	0 : 0	-1 : 1	1 : -1
	1 : -1	0 : 0	-1 : 1
	-1 : 1	1 : -1	0 : 0

Choose the correct answer

#	Answers	
A	Losing this game is just as hard as winning	<i>Correct</i>
B	The game has one pure-strategy Nash equilibrium	
C	The game has three pure-strategy Nash equilibria, each with (0 : 0) payoff	
D	The game has no pure- or mixed-strategy Nash equilibria	