

Game Theory Basics

Game Theory · Answer Key · 20 Questions

1. Who is often considered the 'father of game theory' for his work on the minimax theorem?

- A) John von Neumann**
- B) Alan Turing
- C) Isaac Newton
- D) Albert Einstein

2. In game theory, what is the term for a situation where no player can benefit by changing their strategy while others keep theirs unchanged?

- A) Zero-sum equilibrium
- B) Nash equilibrium**
- C) Pareto efficiency
- D) Prisoner's dilemma

3. A game where one person's gain is exactly balanced by the losses of other participants is known as what?

- A) Cooperative game
- B) Zero-sum game**
- C) Sequential game
- D) Perfect information game

4. Which famous scenario illustrates why two rational individuals might not cooperate, even if it appears that it is in their best interest to do so?

- A) The Tragedy of the Commons
- B) The Prisoner's Dilemma**
- C) The Monty Hall Problem
- D) The Birthday Paradox

5. What type of game involves players making moves one after another, rather than simultaneously?

- A) Sequential game**
- B) Simultaneous game
- C) Random game
- D) Static game

6. Which mathematician and Nobel laureate was the subject of the film 'A Beautiful Mind'?

A) John Nash

B) John von Neumann

C) Ken Binmore

D) Robert Aumann

7. What is a 'dominant strategy' in game theory?

A) A strategy that only works in large groups

B) A strategy that provides the best outcome regardless of the opponent's choice

C) A strategy that requires cheating to win

D) A strategy that is only used by the leader

8. In game theory, 'perfect information' means that players are aware of what?

A) The future of the stock market

B) All previous moves made by all players

C) The personality of their opponents

D) The final score of the game before starting

9. What does the 'payoff' represent in a game theory model?

A) The cost of playing the game

B) The amount of time spent playing

C) The outcome or reward a player receives

D) The number of players involved

10. Which branch of mathematics is game theory most closely associated with?

A) Geometry

B) Calculus

C) Probability and statistics

D) Trigonometry

11. In a 'cooperative game,' players are able to do what?

A) Form alliances and make binding agreements

B) Only play against computers

C) Hide their moves from the referee

D) Change the rules mid-game

12. The study of games where players have multiple turns and the game progresses over time is called what?

A) Repeated games

- B) Instant games
- C) Solitary games
- D) Finite games

13. What is a 'normal form' representation of a game often displayed as?

A) A circular graph

B) A grid or matrix

- C) A narrative paragraph
- D) A three-dimensional sculpture

14. In game theory, what is the 'strategy set'?

A) The list of all possible actions available to a player

- B) The clothes players wear during a game
- C) The specific sequence of winners
- D) The budget set aside for the game

15. Which of these is a real-world field where game theory is commonly applied?

A) Astronomy

B) Economics

- C) Geology
- D) Zoology

16. What is the main goal of a player in a competitive game theory model?

A) To maximize their own payoff

- B) To ensure the game lasts as long as possible
- C) To eliminate all opponents physically
- D) To make the game fair for everyone

17. In the context of game theory, what is a 'player'?

A) An actor in a movie

B) A decision-maker within a game

- C) A person who plays sports
- D) A mechanical device

18. What describes a 'non-zero-sum' game?

A) The total outcome is zero

B) The total outcome can be positive or negative for all players

- C) Players cannot talk to each other
- D) The game has no clear winner

19. Which concept describes the total resources available to be shared among players at the end of a game?

- A) The pie**
- B) The bank
- C) The treasury
- D) The dividend

20. Game theory is primarily used to analyze what type of human behavior?

- A) Spontaneous emotional outbursts
- B) Strategic decision-making**
- C) Reflexive physical movements
- D) Random memory recall