

Worksheet: Prediction Using Probability



Q1: A random sample of 80 school students were asked to vote for their preferred sport and the results are shown in the table. If the whole school contains 700 students, how many are expected to prefer football?



Question Video

Game	Football	Basketball	Table Tennis	Swimming
Number of Students	32	24	8	16

- A 70
- B 140
- C 280
- D 210
- E 32

Q2: A survey of 80 students found that 40 students preferred biology, 24 preferred chemistry, and 16 preferred physics. If there are 200 students in the whole school, how many are expected to prefer biology based on the results of the survey?



Question Video

- A 100
- B 60
- C 200
- D 40

Q3: A sample of 330 people was taken to study the level of education of members in a society. If the ratio of males to females in the sample is 3 : 2, find the number of males in the sample.

A 132

B 66

C 198

D 5

Q4: A school has 500 students; 320 of them are boys. To select students for a survey, a stratified sample of 25 students will be taken. How many boys and how many girls will be selected by the sample?

A 12 boys, 13 girls

B 18 boys, 7 girls

C 64 boys, 36 girls

D 16 boys, 9 girls



Question Video

Q5: A company wants to survey its employees to measure job satisfaction. The company has 300 employees, and the management wants 9% of the employees to participate. Determine the number of the employees who will participate.

- A 33
- B 9
- C 273
- D 291
- E 27

Q6: A factory produces 3 different models of cars every year: 673 of the first model, 514 of the second model, and 213 of the third model. If the manager wants to select a sample of 14% of all the cars for inspection, how many cars will be in the sample?

- A 14
- B 196
- C 29
- D 100



Question Video

Q7: The table shows the results from a survey where 20 students from a school were asked to pick their favourite fruit from 3 options. By calculating the experimental probability that a student's favourite fruit is an orange, calculate how many of the 400 students in the school, would choose an orange as their favourite.



Question Video

Fruit	Apple	Banana	Orange
Number of Students	10	2	8

- A 8
- B 200
- C 240
- D 160
- E 40

Q8: The numbers of students of a university in the first, second, third, and fourth years are 1,000, 5,000, 8,000, and 6,000 respectively. Given that 700 students were selected randomly to participate in a contest and the number of students selected from each year is proportional to the total number of students in that year, how many third-year students were selected?

- A 35
- B 280
- C 175
- D 210

Q9: A factory owner wishes to conduct a survey of 675 employees. The owner wants a sample size of 8%. How many employees will be in the sample?

- A 8
- B 54
- C 621
- D 84

Q10: There are 1,000 employees work at a company. The manager wishes to conduct a survey and needs to ask a sample of 9% of the employees. Determine the number of employees who will participate.

- A 910
- B 90
- C 991
- D 111
- E 9

Q11: A sample of 96 people was taken to study the level of education of members in a society. If the ratio of males to females in the sample is 3 : 1, find the number of males and females in the sample.

A 48 males, 48 females

B 72 males, 24 females

C 32 males, 64 females

D 32 males, 96 females

Q12: A manufacturer of energy-saving light bulbs claims that the lifespan of their bulbs is between 10,000 and 15,000 hours. Is this figure a sample statistic or a population characteristic?

A A population characteristic

B A sample statistic

Q13: A principal wishes to conduct a survey at their school. There are 400 students at the school, and the principal wants 11% of them to participate in the survey. Determine the number of students who will participate.

A 36

B 356

C 44

D 11

E 389

Q14: A manufacturing company is to conduct a survey of the 1,000 employees at its factory. The management wants 11% of the employees to participate. Determine the number of employees who will participate.

A 21

B 89

C 110

D 550

Q15: A student wants to research the amount of pocket money students in his middle school receive.

Which of the following would be the best way to get a representative sample of the population?

A Asking 50 students from his same grade how much pocket money they receive

B Asking the teachers of each class how much pocket money they think the children in their class receive

C Asking all the students from different schools how much pocket money they receive

D Asking all the students in the school how much pocket money they receive

E Asking 20 students from each grade how much pocket money they receive

Q16: Which of the following will give a representative sample?

- A A health organization wants to investigate the reasons people go to the emergency room, so questionnaires are handed out to a random sample of people waiting in the emergency room in a large hospital on a Monday morning.
- B In a school, student representatives from each grade ask a random sample of 20 students from across their grade about how they travel to school.
- C A teacher wants to find out how many students in his class enjoy swimming, so he hands out a questionnaire to everyone at his school.
- D A student wants to find out how many students at their school enjoy math classes, so they give a questionnaire to everyone at math club.
- E A market research company wants to find out how much waste people recycle, so they survey 100 people at the city recycling drop-off location.

Q17: A drug company conducted a trial to find out if migraine symptoms in females, aged 25 to 40, lessened after they took a new drug. The people in the trial found that the number of migraines they experienced was halved. Which of the following inferences would the company make from their results?

- A The drug halves the number of migraines in females between the ages of 25 and 40.
- B The drug halves the number of migraines in females.
- C The drug halves the number of migraines in 25-to-40-year-olds.

Q18: An animal rescue center wants to find out if people in their town think more money should be spent on animal welfare. They plan to ask a random sample of their visitors and volunteers to fill in a questionnaire.

Why would their sample not be representative of the town's population?

- A The center's visitors and volunteers are likely to be supportive of spending more on animal welfare.
- B There might be a high proportion of children in the sample, which will skew the result.
- C The center's visitors and volunteers could come from other towns.
- D We do not know how they will ensure that the sample is random.
- E People will not want to spend time filling in the questionnaire.

Q19: There are about 15 million registered voters in a state, and the government wants to know what proportion of them intends to vote in the next general election. In a survey of 1 000 registered voters, 848 responded that they did intend to vote.

Which of the following is the population parameter?

- A the 848 surveyed who intend to vote
- B the sample size of 1 000
- C about 85% of all of the registered voters in a state
- D the proportion of the population that intends to vote in the next general election
- E the population size of 15 million

Q20: A sixth-grade boy is considering joining the school choir. He wonders how many boys sing in the choir. In the choir brochure, there is a photo showing 10 boys and 13 girls. Assuming the photo is representative of the choir and given that the choir has 70 singers in total, what would be a possible estimate of the number of boys in the choir from this photo?

- A 21
- B 16
- C 30
- D 40
- E 54

Q21: A large fast-food chain wants to find out if its customers like their new salad range. They conduct a survey where they interview 3000 customers in their Texas restaurants.

What is the sample of the population?

- A all their customers
- B the 3000 customers who were interviewed
- C all their customers in Texas
- D all their customers outside Texas

Q22: Victoria makes a random selection of 40 students from her school to investigate how the students at her high school feel about the quality of food in the school canteen.

What is the population that has been sampled?

- A the students at Victoria's school
- B the selection of 40 students
- C all high school students
- D all students Victoria's age
- E all the people in Victoria's city

Q23: A fair die is rolled 956 times. Calculate the expected number of times an even number is rolled.

- A 159
- B 319
- C 956
- D 478



Question Video

Q24: Jacob plays a card game with his friend and the result can be either win, lose, or draw. Each time they play, the probability that Jacob will win is 0.5, and the probability he will lose is 0.3. If they play 50 games, what is the expected number that will end in a draw?



Question Video

A 15

B 25

C 40

D 10

Q25: In a survey of 400 tourists who visited Egypt, 160 were from Arab countries, 120 were from Europe, 40 from Latin America, and 80 from Australia. If the total number of tourists who visited Egypt in a month was 5,000, how many of them are expected to be from Europe?

A 2,000

B 1,000

C 500

D 1,500

E 120