For problems #1-3, suppose the scores for the first quiz in this class are N(78,8). Use the table below to find the following probabilities:



1. A randomly selected student scores above a 90.
2. A randomly selected student scores below an 86.
3. A randomly selected student scores between a 66 and an 86.

For problems #7-10, consider the table below, which is the heights of a class of 4th graders.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 25 | 37 | 32 | 38 | 51 |
| 62 | 52 | 54 | 29 | 35 |
| 39 | 58 | 30 | 28 | 34 |
| 34 | 36 | 37 | 64 | 25 |

1. What is 𝞵?
2. What is σ?
3. What is the Lower Quartile?
4. Is this data normally distributed?
5. A store owner wants to know if he sells more water or sports drinks. He records the number of sales for both products. What is the data- gathering technique used?

 A) experiment B) randomized survey

 C) observational study D) voluntary survey

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

1. A teacher wants to know what students think about the new cafeteria. The teacher asks every tenth student to take the survey. What type of sample is this?

 A) stratified B) systematic C) self-selected D) cluster

The probability distribution of the number of piglets per litter on a farm is given below.

|  |
| --- |
| **Piglet Births per Litter** |
| ***n* piglets** | 4 | 5 | 6 |
| **Probability of *n* piglets** | 0.2 | 0.4 | 0.4 |

1. What is the expected number of piglets per litter on this farm?

 A)4.8 B)5.0 C) 5.2 D) 5.8

1. The school principal wants to know if students like the school mascot. She asks 120 students throughout the day. Which of these is the population?

 F) 120 students H) All the students that do not like the mascot

 G) All the students that like the mascot J) All the students in the school.

For problems #12-14, Suppose we have N(2,2).

1. What is P(x < -2)?
2. What is P(x > 8)?
3. What is P(-2 < x < 4)?
4. Suppose that you have a 20% chance of winning $100, a 30% chance of losing $10, and a 50% chance of breaking even. What is the expected value?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |

For problems #1-3, suppose the scores for the first quiz in this class are N(78,8). Use the table below to find the following probabilities:



1. A randomly selected student scores below a 90.
2. A randomly selected student scores above an 86.
3. A randomly selected student scores between a 74 and an 90.

For problems #7-10, consider the table below, which is the heights of a class of 4th graders.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| 25 | 37 | 32 | 38 | 51 |
| 62 | 52 | 54 | 29 | 35 |
| 39 | 58 | 30 | 28 | 34 |
| 34 | 36 | 37 | 64 | 25 |

1. What is σ?
2. What is 𝞵?
3. What is the Upper Quartile?
4. Is this data normally distributed?
5. The school guidance counselor wants to know if students know where the guidance office is. She asks 90 students throughout the day. Which of these is the sample size?

F) 90 students G) All the students that like the mascot

H) All the students that do not like the mascot J) All the students in the school.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 |

The probability distribution of the egg production of a farmer’s chickens is given below.

|  |
| --- |
| **Egg Production** |
| ***n* eggs** | 3 | 4 | 5 |
| **Probability of *n* eggs** | 0.25 | 0.7 | 0.05 |

1. What is the expected egg production for any one chicken?

A) 3.6 B) 3.8 C) 3.9 D) 4.0

1. A store owner wants to know if his shoppers like backpacks or shoulder bags. He sells only backpacks
for one month. Then he sells only shoulder bags and records the results. What is the data-gathering technique used?

A) experiment B) randomized survey C) observational study D) voluntary survey

1. A coach wants to know what students think about the new jerseys. The coach asks 10 students picked
at random from each grade. What type of sample is this?

A) stratified B) systematic C) self-selected D) cluster

For problems #12-14, Suppose we have N(2,2).

1. What is P(x > -2)?
2. What is P(x < 8)?
3. What is P(-2 < x < 4)?
4. Suppose that you have a 30% chance of winning $100, a 20% chance of losing $10, and a 50% chance of breaking even. What is the expected value?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| 9 | 10 | 11 | 12 | 13 | 14 | 15 |