Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_#:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**INTERPRETING ECOLOGICAL DATA**

**Graph 1: Rabbits Over Time**



a. The graph shows a \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ growth curve.
b. The carrying capacity for rabbits is \_\_\_\_\_\_\_\_\_\_\_\_
c. During which month were the rabbits in exponential growth? \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Graph 2: Average Toe Length**



a. In 1800, about how many people surveyed had a 3 cm toe? \_\_\_\_\_\_\_\_\_\_\_\_\_
How many in 2000? \_\_\_\_\_\_\_\_\_\_\_\_
b. The data shows \_\_\_\_\_\_\_\_\_\_\_\_ selection has occurred (\*remember the last unit)
c. In 2000, what is the average toe length? \_\_\_\_\_\_\_\_ What is the average toe length in 1800? \_\_\_\_\_\_\_\_

**Graph 3: Mexico and US**



a. In Mexico, what percentage of the population is between 0-4 years of age? \_\_\_\_\_\_\_

 In the US? \_\_\_\_\_\_\_\_
b. Which population is growing the fastest? \_\_\_\_\_\_\_\_\_\_. Explain how you know \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

c. Which age group has the smallest number in both countries? \_\_\_\_\_\_\_\_\_

**Chart 4: Trapping Geese**

In order to estimate the population of geese in Northern Wisconsin, ecologists marked 10 geese and then released them back into the population. Over a 6 year period, geese were trapped and their numbers recorded.

|  |  |  |
| --- | --- | --- |
| Year | Geese Trapped | Number with Mark |
| 1980 | 10 | 1 |
| 1981 | 15 | 1 |
| 1982 | 12 | 1 |
| 1983 | 8 | 0 |
| 1984 | 5 | 2 |
| 1985 | 10 | 1 |



a. Use the formula to calculate the estimated number of geese in the area studied? \_\_\_\_\_\_\_\_\_\_\_\_\_
b. This technique is called \_\_\_\_\_\_\_\_\_\_\_\_ & \_\_\_\_\_\_\_\_\_\_\_\_\_\_ (Refer to PPt)
c. Suppose more of the geese found in the trap had the mark, would the estimated number of geese in the area be greater or lesser? \_\_\_\_\_\_\_\_\_\_\_. **EXPLAIN BELOW**:

**Chart 5: Snakes & Mice**

|  |  |  |  |
| --- | --- | --- | --- |
| Year | Snakes | Mice born | Mice died |
| 1960 | 2 | 1000 | 200 |
| 1970 | 10 | 800 | 300 |
| 1980 | 30 | 400 | 500 |
| 1990 | 15 | 600 | 550 |
| 2000 | 14 | 620 | 600 |
| 2001 | 15 | 640 | 580 |

The data shows populations of snake and mice found in an experimental field.

a. During which year was there no mouse population growth? \_\_\_\_\_\_\_\_\_\_\_\_
b. What is the carrying capacity for snakes ? \_\_\_\_\_\_\_\_\_\_
c. Approximately what year was the carrying capacity of mice reached? \_\_\_\_\_\_\_\_\_
d. Explain at least 3 reasons why a population cannot continue to grow exponentially & reaches carrying capacity.

 1-

 2-

 3-

**Last question**: Explain the difference between **density dependent and density independent factors**. Include a minimum of 2 examples of each.