

SECTION 20-1 REVIEW

UNDERSTANDING POPULATIONS

VOCABULARY REVIEW Contrast the following terms.

1. population density, dispersion _____

2. mortality rate, life expectancy _____

MULTIPLE CHOICE Write the correct letter in the blank.

- _____ 1. One can estimate a population's size by counting individuals in a sample of the population if the
 - a. distribution of individuals in the sample is the same as that in the population.
 - b. density in the sample is greater than the population density.
 - c. dispersion in the sample is less than that in the population.
 - d. sample size is larger than the population size.
- _____ 2. A random distribution of individuals in a population would be most likely to result from
 - a. clumped food resources.
 - b. territorial behavior by the individuals in the population.
 - c. herding behavior by the individuals in the population.
 - d. the dispersal of seeds by the wind.
- _____ 3. Although the United States has a larger total population than Japan, population density is greater in Japan because the
 - a. people in the United States have less education and medical care.
 - b. people in Japan all live in the cities.
 - c. geographical area is greater in the United States.
 - d. birth rate is lower than the death rate in Japan.
- _____ 4. A population is likely to grow most rapidly if it has
 - a. a high percentage of old individuals.
 - b. a high percentage of young individuals.
 - c. about the same percentage of individuals in each age range.
 - d. individuals with a low birth rate.
- _____ 5. In a population with a Type I survivorship curve, the likelihood of dying is
 - a. low until late in life, when it increases rapidly.
 - b. high early in life and much lower in older individuals.
 - c. high early in life and late in life, but much lower in middle-aged individuals.
 - d. fairly constant throughout life.

SHORT ANSWER Answer the questions in the space provided.

1. How do the three main patterns of population dispersion differ from one another? _____

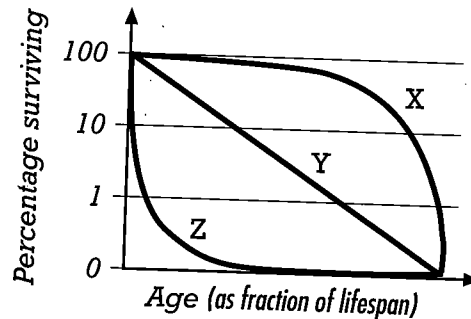
2. Give an example of a social behavior that can produce a clumped distribution. _____

3. Give an example of a social behavior that can produce an even distribution. _____

4. **Critical Thinking** What would the survivorship curve for humans look like if there were a worldwide epidemic of a fatal disease that affected only children under five years of age?

STRUCTURES AND FUNCTIONS Use the figure to answer the following questions.

The graph below shows three different types of survivorship curves.



1. Which curve corresponds to a species in which 0.3% of the individuals are alive after one-quarter of their lifespan has passed and 0.1% are alive after one-half of their lifespan has passed?

2. Which curve corresponds to a species in which 95% of the individuals are alive after one-quarter of their lifespan has passed and 90% are alive after one-half of their lifespan has passed?

3. Which curve corresponds to a species in which 10% of the individuals are alive after one-third of their lifespan has passed and 1% are alive after two-thirds of their lifespan has passed?

4. Give an example of a species that would have each type of survivorship curve.
 X _____ Y _____ Z _____

SHORT ANSWER Answer the questions in the space provided.

- In 1996 in the United States, the number of live births was 4 million, the number of deaths was 2.4 million, and the population was 265 million. Calculate the per capita birth rate, death rate, and growth rate. Show your calculations. _____

- What evidence did Charles Elton collect that suggested that fluctuations in hare and lynx populations were related? _____

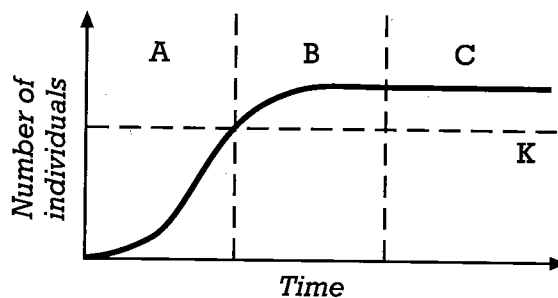
 What other evidence indicates that these fluctuations may not have been related? _____

- Name three effects that inbreeding can have on a population. _____

- Critical Thinking** If a population's per capita growth rate is 0.02 and its population is 100,000,000, how large will the population be in five years? Show your calculations. _____

STRUCTURES AND FUNCTIONS Use the figure to answer the following questions.

The graph below shows the growth of a population over time.



- Describe the birth rate and death rate in region A. _____
- Describe the birth rate and death rate in region C. _____
- Identify the line labeled K. _____
- What model best describes the growth of this population? _____