Name:
Class:
Date:

Activity 16.2A: Population Dynamics Lab

Materials Needed

- Internet access

Instructions

For each problem, calculate what the total population will be in five years. You must perform the calculations for each year. In all populations, assume the initial number and all births are 50% male and 50% female. If you have an odd number of animals, the male population has an additional member. Review the example.

Example: *There are 100 mule deer in an area. The yearly birth rate is one fawn per doe. Predators will take 25% of the population, and hunters will kill 25% of the population. What will the population of this herd be in five years?*

Mule Deer Population

Year	Item	Change	Total	Notes
1	Beginning population	N/A	100	There are 50 males and 50 females
1	Births	+50	150	50 does @ 1 fawn per doe
1	Predator loss	–38	112	25% of 150 = 37.5 *(you cannot kill .5 of an animal and must round this number up)*
1	Hunter loss	–38	74	25% of 150 = 37.5
2	Beginning population	N/A	74	37 males and 37 females
2	Births	+37	111	37 does @ 1 fawn per doe
2	Predator loss	–28	83	25% of 111 = 28
2	Hunter loss	–28	55	25% of 111 = 28

Year	Item	Change	Total	Notes
3	Beginning population	N/A	55	28 males and 27 females
3	Births	+27	82	27 does @ 1 fawn per doe
3	Predator loss	–21	61	25% of 82 = 21
3	Hunter loss	–21	40	25% of 82 = 21
4	Beginning population	N/A	40	20 males and 20 females
4	Births	+20	60	20 does @ 1 fawn per doe
4	Predator loss	–15	45	25% of 60 = 15
4	Hunter loss	–15	30	25% of 60 = 15
5	Beginning population	N/A	30	15 males and 15 females
5	Births	+15	45	15 does @ 1 fawn per doe
5	Predator loss	–12	33	25% of 45 = 12
5	Hunter loss	–12	21	25% of 45 = 12

Total population after five years: 21

Name:

Class:

Date:

Materials Needed

- Internet access

Instructions

This data is for a herd of 500 Rocky Mountain elk. Their annual birth rate is one calf per cow. Predators will take 10% of the population each year. There is no hunting in this area. What will be the total population in five years?

Rocky Mountain Elk Population

Year	Item	Change	Total	Notes
1	Beginning population	Answer:	Answer:	Answer:
1	Births	Answer:	Answer:	Answer:
1	Predator loss	Answer:	Answer:	Answer:
1	Hunter loss	Answer:	Answer:	Answer:
2	Beginning population	Answer:	Answer:	Answer:
2	Births	Answer:	Answer:	Answer:
2	Predator loss	Answer:	Answer:	Answer:
2	Hunter loss	Answer:	Answer:	Answer:
3	Beginning population	Answer:	Answer:	Answer:

Year	Item	Change	Total	Notes
3	Births	Answer:	Answer:	Answer:
3	Predator loss	Answer:	Answer:	Answer:
3	Hunter loss	Answer:	Answer:	Answer:
4	Beginning population	Answer:	Answer:	Answer:
4	Births	Answer:	Answer:	Answer:
4	Predator loss	Answer:	Answer:	Answer:
4	Hunter loss	Answer:	Answer:	Answer:
5	Beginning population	Answer:	Answer:	Answer:
5	Births	Answer:	Answer:	Answer:
5	Predator loss	Answer:	Answer:	Answer:
5	Hunter loss	Answer:	Answer:	Answer:

1. Total population after five years
   Answer:

2. What would you do to manage this population more effectively?
   Answer:

Name:

Class:

Date:

Materials Needed

- Internet access

Instructions

This data is for a herd of 200 bison. Their yearly birth rate is one calf for every two cows. They will lose 10% of the population to hunters. Predators do not take any animals in this range. What will be the total population in five years?

Bison Population

Year	Item	Change	Total	Notes
1	Beginning population	Answer:	Answer:	Answer:
1	Births	Answer:	Answer:	Answer:
1	Predator loss	Answer:	Answer:	Answer:
1	Hunter loss	Answer:	Answer:	Answer:
2	Beginning population	Answer:	Answer:	Answer:
2	Births	Answer:	Answer:	Answer:
2	Predator loss	Answer:	Answer:	Answer:
2	Hunter loss	Answer:	Answer:	Answer:
3	Beginning population	Answer:	Answer:	Answer:
3	Births	Answer:	Answer:	Answer:

Year	Item	Change	Total	Notes
3	Predator loss	Answer:	Answer:	Answer:
3	Hunter loss	Answer:	Answer:	Answer:
4	Beginning population	Answer:	Answer:	Answer:
4	Births	Answer:	Answer:	Answer:
4	Predator loss	Answer:	Answer:	Answer:
4	Hunter loss	Answer:	Answer:	Answer:
5	Beginning population	Answer:	Answer:	Answer:
5	Births	Answer:	Answer:	Answer:
5	Predator loss	Answer:	Answer:	Answer:
5	Hunter loss	Answer:	Answer:	Answer:

1. Total population after five years
   Answer:

2. What would you do to manage this population more effectively?
   Answer:

Name:

Class:

Date:

Materials Needed

- Internet access

Instructions

This data is for a flock of 1,000 ducks. Their yearly birth rate will be five ducklings per hen. They will lose 25% of the population to hunters, and 25% of the population to predators. What will be the total population in five years?

Duck Population

Year	Item	Change	Total	Notes
1	Beginning population	Answer:	Answer:	Answer:
1	Births	Answer:	Answer:	Answer:
1	Predator loss	Answer:	Answer:	Answer:
1	Hunter loss	Answer:	Answer:	Answer:
2	Beginning population	Answer:	Answer:	Answer:
2	Births	Answer:	Answer:	Answer:
2	Predator loss	Answer:	Answer:	Answer:
2	Hunter loss	Answer:	Answer:	Answer:
3	Beginning population	Answer:	Answer:	Answer:
3	Births	Answer:	Answer:	Answer:
3	Predator loss	Answer:	Answer:	Answer:

Year	Item	Change	Total	Notes
3	Hunter loss	Answer:	Answer:	Answer:
4	Beginning population	Answer:	Answer:	Answer:
4	Births	Answer:	Answer:	Answer:
4	Predator loss	Answer:	Answer:	Answer:
4	Hunter loss	Answer:	Answer:	Answer:
5	Beginning population	Answer:	Answer:	Answer:
5	Births	Answer:	Answer:	Answer:
5	Predator loss	Answer:	Answer:	Answer:
5	Hunter loss	Answer:	Answer:	Answer:

1. Total population after five years
   Answer:

2. What would you do to manage this population more effectively?
   Answer:

Name:

Class:

Date:

Materials Needed

- Internet access

Instructions

This data is for a group of 1,000 bobwhite quail. Their yearly birth rate will be ten chicks per hen. They will lose 50% of the population to predators, and 25% of the population to hunters. What will be the total population in five years?

Bobwhite Quail Population

Year	Item	Change	Total	Notes
1	Beginning population	Answer:	Answer:	Answer:
1	Births	Answer:	Answer:	Answer:
1	Predator loss	Answer:	Answer:	Answer:
1	Hunter loss	Answer:	Answer:	Answer:
2	Beginning population	Answer:	Answer:	Answer:
2	Births	Answer:	Answer:	Answer:
2	Predator loss	Answer:	Answer:	Answer:
2	Hunter loss	Answer:	Answer:	Answer:
3	Beginning population	Answer:	Answer:	Answer:
3	Births	Answer:	Answer:	Answer:
3	Predator loss	Answer:	Answer:	Answer:

Year	Item	Change	Total	Notes
3	Hunter loss	Answer:	Answer:	Answer:
4	Beginning population	Answer:	Answer:	Answer:
4	Births	Answer:	Answer:	Answer:
4	Predator loss	Answer:	Answer:	Answer:
4	Hunter loss	Answer:	Answer:	Answer:
5	Beginning population	Answer:	Answer:	Answer:
5	Births	Answer:	Answer:	Answer:
5	Predator loss	Answer:	Answer:	Answer:
5	Hunter loss	Answer:	Answer:	Answer:

1. Total population after five years
   Answer:

2. What would you do to manage this population more effectively?
   Answer: