

The general formula for exponential growth of a population

Population =

4) If the starting population of 5 rabbits grows at 200% each year, how many will there be 20 years?

5) If the starting population of 5 rabbits grows at 200% each year, how many will there be 50 years?



Frogs

6) A population of 100 frogs increases at an annual rate of 22%. How many frogs will there be in 5 years?

Using this same model for the exponential growth of the frogs, what will be the frog population in

7) 10 years

8) 50 years

9) A type of bacteria has a very high exponential growth rate at 80% every hour. If there are 10 bacteria, determine how many there will be in 5 hours, 1 day, and 1 week?

a) 5 hours:

c) 1 Week

b) 1 Day

10) A species of extremely rare, deep water fish has an extremely rarely have children. If there are a 821 of this type of fish and their growth rate is 2% each month, how many will there be in half of a year, in 10 years and 100 years?

a) Half a year

b) 10 years

c) 100 years

II. New York State Math B Regents Questions

1) The population of Henderson City was 3,381,000 in 1994, and is growing at an annual rate of 1.8%. If this growth continues, what will the approximate population of Henderson City be in the year 2000.

- (1) 3,696,000 (3) 3,798, 000
(2) 3,763,000 (4) 3,831,000

2) A culture of bacteria contained 3,842,700 cells on one day and is growing at a daily rate of 6.8%. How many cells would be present 4 days later?

- (1) 4,999,442 (3) 5,043,878
(2) 5,339,404 (4) 15,370,800

3) From the January 2007 Test:

Since January 1980, the population of the city of Brownville has grown according to the mathematical model $y = 720,500(1.022)^x$, where x is the number of years since January 1980.

Explain what the numbers 720,500 and 1.022 represent in this model

IV. Finding Percent growth

- 1) If a population of rats was 10 in January and 15 in February, what is the percent growth of these rats?

- 2) If there are 20 foxes in the forest this year, and 21 in one year, what percent is the percent growth of the foxes?

- 3) If there are 20 foxes in the forest this year, and 21 in one year, what percent is the percent growth of the foxes?

- 4) Two years ago there were 30 goldfish in the pond, and this year there are 40. What is the annual percent growth?

- 5) Three years ago there were 10 apes and the population is now 19, what is the annual percent growth?