ANSWER KEY.

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Exponential and Logistic Growth

Biology | ANSWER KEY

Answer in complete sentences. Show your work for calculations. Use the graphs and tables as evidence.

1. A deer population in a park is described below. Find the population size at the end of the year and the percent change.

Deer population in a park	Number
Number of deer at the start	200
Births	30
Deaths	20
Immigration	5
Emigration	15

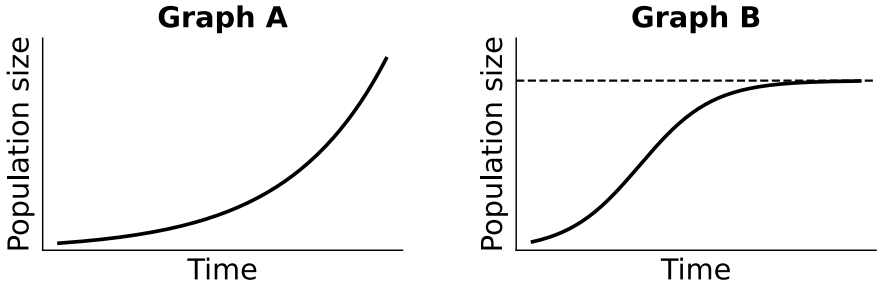
(a) New size (show the setup). (b) Percent change. (c) Did the population grow, shrink, or stay about the same?

(a) 200 + 30 + 5 − 20 − 15 = **200 deer**

(b) (200 − 200) ÷ 200 × 100 = **0%**

(c) **Stayed about the same.** Added (35) equals removed (35).

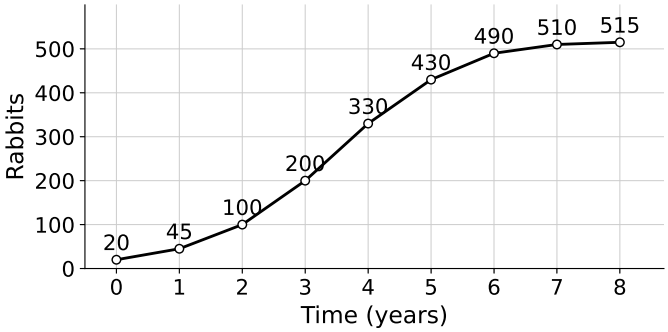
2. Use the two graphs to answer the questions.



Statement	Graph A or B?
(a) Shows logistic growth	**B**
(b) Has a carrying capacity	**B**
(c) Growth speeds up and never slows	**A**

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3. Rabbits were released on an island with plenty of food. The graph shows the population over time.



(a) Estimate the carrying capacity.

(b) During which year did the population increase the most? Give the number.

(a) **About 500 rabbits**

(b) Changes: 25, 55, 100, 130, 100, 60, 20, 5. **Year 3 to year 4, an increase of 130 rabbits**

4. Explain why the rabbit population stopped growing, even though the rabbits could still reproduce. Use the graph as evidence.

The population leveled off near 500 rabbits (515 at year 8, up only 5 from year 7). As the population grew, food and space became limited, so fewer young survived and the number added matched the number lost. The population reached the island's carrying capacity.

Must include: (1) limited resources; (2) data from the graph; (3) growth slows near the carrying capacity.

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