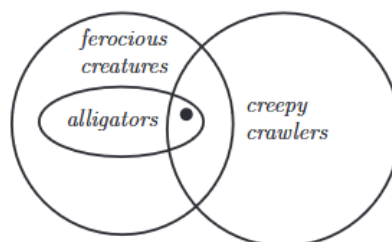


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## LOGIC

- 2000 21. **Answer (B):** From the conditions we can conclude that some creepy crawlers are ferocious (since some are alligators). Hence, there are some ferocious creatures that are creepy crawlers, and thus II must be true. The diagram below shows that the only conclusion that can be drawn is existence of an animal in the region with the dot. Thus, neither I nor III follows from the given conditions.



- 2011A 23. **Answer (C):** After each person counts, the numbers left for the next person form an arithmetic progression. For example, Alice leaves all of the numbers  $2, 5, 8, 11, 14, \dots, 2 + 3 \cdot 332$  for Barbara. If a student leaves the progression  $a, a + d, a + 2d, a + 3d, a + 4d, \dots$ , then the next student leaves the progression  $a + d, (a + d) + 3d, (a + d) + 6d, \dots$

This implies that in the following table, each number in the third column is three times the previous entry in the third column, and each entry in the second column is the sum of the two entries in the row above:

Left for	First Term	Common Difference
Alice	1	1
Barbara	2	3
Candice	5	9
Debbie	14	27
Eliza	41	81
Fatima	122	243
George	365	729

George is left with the single term 365.

OR

The numbers skipped by Alice are the middle numbers in each consecutive group of 3, that is, 2, 5, 8, and so on. The numbers skipped by Alice and Barbara are the middle numbers in each group of 9, that is, 5, 14, 23, and so on. In general, the numbers skipped by all of the first  $n$  students are the middle numbers in each group of  $3^n$ . Because  $3^6 = 729$ , the only number not exceeding 1000 that is skipped by the first six students is  $\frac{729+1}{2} = 365$ . That is the number that George says.