

Game 31 – Pet Rescue

A pet rescue has exactly six cats available for adoption. Each is one of three breeds—Manx, Persian or Tabby—and is either male or female. The display must conform to the following conditions:

There are at most two Persian cats.

There is at least one female Manx cat.

There are no male Tabby cats.

If there are two or more female cats, then at least one of those is a Persian.

At least one cat is male.

1. Which could be a complete and accurate list of the cats available for adoption?
 - A. four female Manx cats, two male Tabby cats
 - B. three male Persian cats, one female Tabby cat, two female Manx cats
 - C. six female Manx cats
 - D. three male Manx cats, one female Manx cat, one female Tabby cat, one female Persian cat
 - E. three female Manx cats, two male Persian cats, one male Tabby cat
2. Which one of the following could be true?
 - A. Exactly four Tabby cats and two Persian cats are available for rescue.
 - B. Exactly four Tabby cats and two Manx cats are available for rescue.
 - C. Only Tabby cats are available for rescue.
 - D. Only Persian cats are available for rescue.
 - E. Only Manx cats are available for rescue.
3. Each of the following could be a complete and accurate list of the cats available for rescue EXCEPT
 - A. two female Persian cats, two male Manx cats, two female Manx cats
 - B. one female Persian cat, three male Manx cats, one female Tabby cat, one female Manx cat
 - C. one male Persian cat, two male Manx cats, two female Tabby cats, one female Manx cat
 - D. one male Persian cat, one female Persian cat, three female Tabby cats, one female Manx cat
 - E. five male Manx cats, one female Manx cat
4. If there is exactly one Persian cat and it is a male, which one of the following could be a complete and accurate list of the Manx cats available for rescue?
 - A. three females, two males
 - B. two females, two males
 - C. three males
 - D. four males, one female
 - E. five males
5. If there is only one Manx cat available for rescue, which one of the following must be true?
 - A. there is exactly one Persian cat available for rescue
 - B. there are exactly two Persian cats available for rescue
 - C. there are exactly three Tabby cats available for rescue
 - D. there are exactly four Tabby cats available for rescue
 - E. there are exactly five Tabby cats available for rescue
6. If no Tabby cats are available for rescue, what are the minimum and maximum numbers of female cats that can be available for rescue, respectively?
 - A. 1, 4
 - B. 1, 5
 - C. 1, 6
 - D. 2, 5
 - E. 2, 6

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1. D
2. E
3. C
4. D
5. B
6. B

Question 1 is the standard rule testing question, and the four wrong answers all break a rule. Likewise, four of the answers on the second question break a rule; for instance, B doesn't work because if you have four Tabby cats, you have more than two females, and you need to have a Persian.

Question 3 is a matter of seeing which answer breaks a rule—you get to the answer by noticing that C has two female cats but no female Persian cat.

For Question 4, the important inference is that because there is no female Persian cat, there must be only one female cat, and since you can't have male Tabby cats, you need four or five male Manx cats—and you must have one female Manx cat, excluding the latter possibility.

On Question 5, there must be two Persian cats because there are more than two female cats (since all the Tabby cats and the Manx are female under the Manx cat rule). This means there must be a female Persian cat as well as a male, since there must be one male cat. The answer to Question 6 flows naturally from the rules—only one male is required to be available, and nothing else restricts the presence of females.