

Inclusion-Exclusion Principle

- 1 (1分) At a restaurant, 15 people ordered meat dishes and 10 people ordered vegetarian dishes. Furthermore, 5 customers buy both meat dishes and vegetarian dishes, while 8 customers buy neither. The total number of customers is _____ .
- A. 15 B. 20 C. 28 D. 35
- 2 (1分) A survey of Class 1 found that 20 students can swim, 25 students can play basketball, 10 students can do both, and 8 students can do neither. The total number of students in Class 1 is _____ .
- A. 38 B. 43 C. 45 D. 47
- 3 (1分) The eighth grade class at Lincoln Middle School has 106 students. Each student takes a math class or a foreign language class or both. There are 65 eighth graders taking a math class, and there are 47 eighth graders taking a foreign language class. How many eighth graders take only a math class and not a foreign language class? (Adapted from 2019 AMC 8 Problems, Question #11)
- A. 18 B. 51 C. 65 D. 59 E. 112
- 4 (1分) There are 22 students participating in an after—school program offering classes in yoga, bridge, and painting. Each student must take at least one of these three classes, but may take two or all three. There are 12 students taking yoga, 11 taking bridge, and 9 taking painting. There are 7 students taking at least two classes. How many students are taking all three classes? (Adapted from 2017 AMC 10B Problems, Question #13)
- A. 1 B. 2 C. 3 D. 4 E. 5
- 5 (1分) At Typico High School, 50% of the students like dancing, and the rest actually dislike it. Of those who like dancing, 80% say that they like it, and the rest say that they dislike it. Of those

who dislike dancing, 80% say that they dislike it, and the rest say that they like it. What fraction of students who say they dislike dancing actually like it?

A. 10%

B. 15%

C. 20%

D. 25%