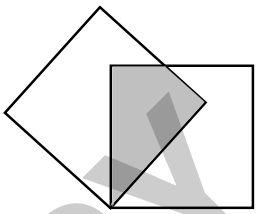
Math Kangaroo Level Books

Student (고2-3)
(샘플 문제)

1. Consider a rectangle, one of whose sides has a length of 5. The rectangle can be cut into a square and a rectangle, one of which has the area 4. How many such rectangles exist?

(A) 1 (B) 2 (C) 3 (D) 4 (E) 5

2. The diagram shows two squares of equal side length placed so that they overlap. The squares have a common vertex and the sides make an angle of 45 degrees with each other, as shown. What is the area of the overlap as a fraction of the area of one square?



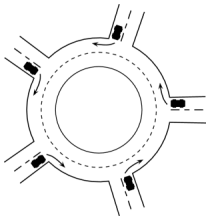
(A) $\frac{1}{2}$ (B) $\frac{1}{\sqrt{2}}$ (C) $1-\frac{1}{\sqrt{2}}$

(D) $\sqrt{2}-1$ (E) $\frac{\sqrt{2}-1}{2}$

3. On the island of Knights and Knaves there live only two types of people: Knights (who always speak the truth) and Knaves (who always lie). I met two men who lived there and asked the taller man if they were both Knights. He replied, but I could not figure out what they were, so I asked the shorter man if the taller was a Knight. He replied, and after that I knew which type they were. Were the men Knights or Knaves?

(A) They were both Knights.
(B) They were both Knaves.
(C) The taller was a Knight and the shorter was a Knave.
(D) The taller was a Knave and the shorter was a Knight.
(E) Not enough information is given.

4. The roundabout shown in the picture is entered by 5 cars at the same time, each one from a different direction. Each of the cars drives less than one round and no two cars leave the roundabout in the same direction. How many different combinations are there for the cars leaving the roundabout?



(A) 24 (B) 44 (C) 60 (D) 81 (E) 120