Math Kangaroo 2012 Sample Questions - Levels 5 & 6

3. Sally can put 4 coins in a square made using 4 matches (see picture). At least how many matches will she need in order to make a square containing 16 coins that do not overlap?

A) 8   B) 10   C) 12   D) 15   E) 16

4. On a certain plane, the rows are numbered from 1 to 25, but there is no row number 13. Row number 15 has only 4 passenger seats; all the other rows have 6 passenger seats. How many seats for passengers are there on this plane?

A) 120   B) 138   C) 142   D) 144   E) 150

12. Lisa has 8 dice with the letters A, B, C and D, with the same letter on all sides of each die. She builds a block with them. Two adjacent dice always have different letters. What letter is on the die that cannot be seen in the picture?

A) A   B) B   C) C   D) D   E) It is impossible to say.

13. There are five cities in Wonderland. Each pair of cities is connected by one road, either visible or invisible. On the map of Wonderland, there are only seven visible roads, as shown. Alice has magical glasses: when she looks at the map through these glasses she only sees the roads that are otherwise invisible. How many invisible roads can she see?
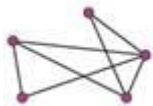
A) 9   B) 8   C) 7   D) 3   E) 2

25. Kanga wants to arrange the twelve numbers from 1 to 12 in a circle in such a way that any neighboring numbers always differ by either 1 or 2. Which of the following pairs of numbers have to be neighbors?

A) 5 and 6   B) 10 and 9   C) 6 and 7   D) 8 and 10   E) 4 and 3

26. Peter wants to cut a rectangle of size 6 x 7 into squares with integer sides. What is the smallest number of squares he can get?

A) 4   B) 5   C) 7   D) 9   E) 42