

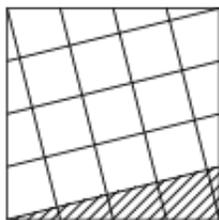
## Math Awareness Month Competition 2012 Examination for 3rd-4th Grades

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**DIRECTIONS:** [40 Minutes - 5 Questions] Start each new problem on a separate page. **Show your work!** Answers must be exact. You are allowed to use a calculator. You are not allowed to borrow or interchange calculators during the test.

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1. In a city, there is a central subway station and the subway lines spread like spokes from the central station. There are 12 stops on each line including the central station. The last stop on each line is connected by a circular subway line, and the only stops on the circular subway are the last stops of each of the “spoke” lines. The circular subway line has 11 stops. How many total stops are there altogether?
2. We divide each side of a square into four equal parts and connect the division points as in the picture. What is the proportion of the shaded area to area of the square?



3. A farmer’s family eats 90 heads from a special kind of lettuce every spring. Each seed, when planted, can produce one head of lettuce or 10 seeds, but not both. That is, when a plant grows seeds, its leaves are too sour and its head cannot be eaten. How many seeds should the family buy if they want to grow enough lettuce for eating in the spring and supplying seeds for the following year?
4. Sally’s grandfather clock chimes inaccurately. On each hour, it chimes one more time than it did in the previous hour. However, after it chimes 11 times, it will chime 1 time (instead of 12 times) on the following hour. The clock chimes 11 times on Monday night at 11 pm. Which hour of which day will be the next time when it chimes accurately again?
5. A die is a cube with faces numbered 1, 2, 3, 4, 5, 6. Peter rolls a few dice and sees that each die has the same number of spots on the top. He notes that the sum of the spots on the top of the dice is four more than three times the number of dice he rolled. How many dice did he possibly roll?