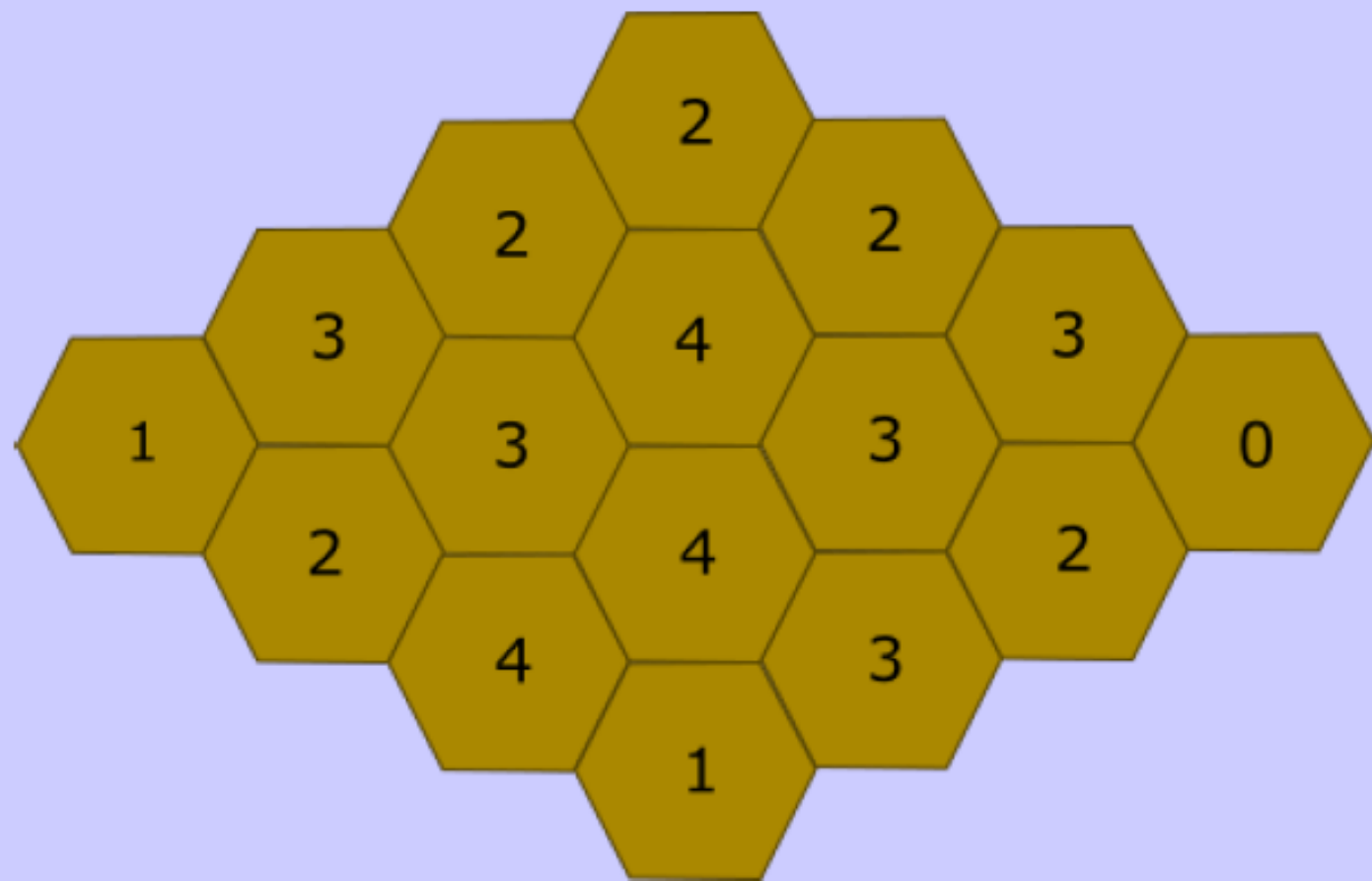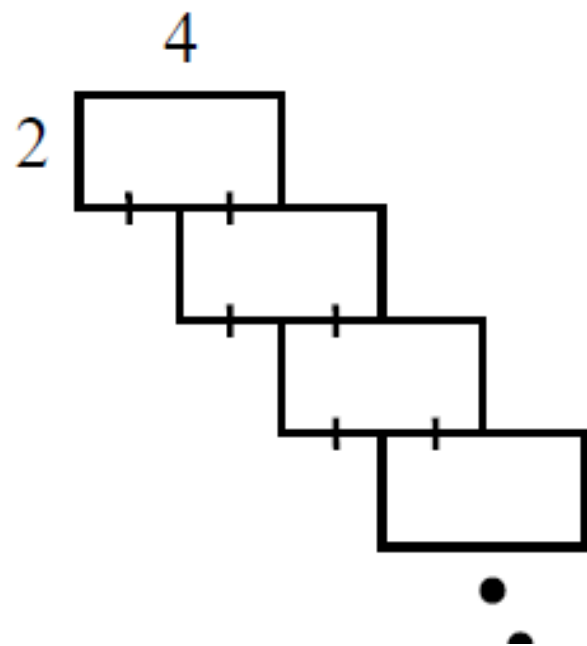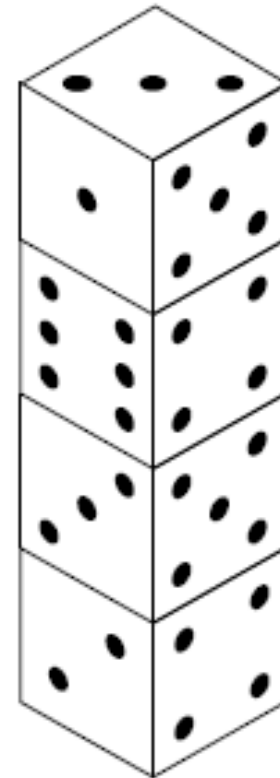A bear studies how many hexagons in a honeycomb contain honey. For each hexagon, the bear records how many *other* hexagons touching this hexagon contain honey. So this number could be 0, 1, 2, 3, 4, 5 or 6. The results of the bear's study are below.
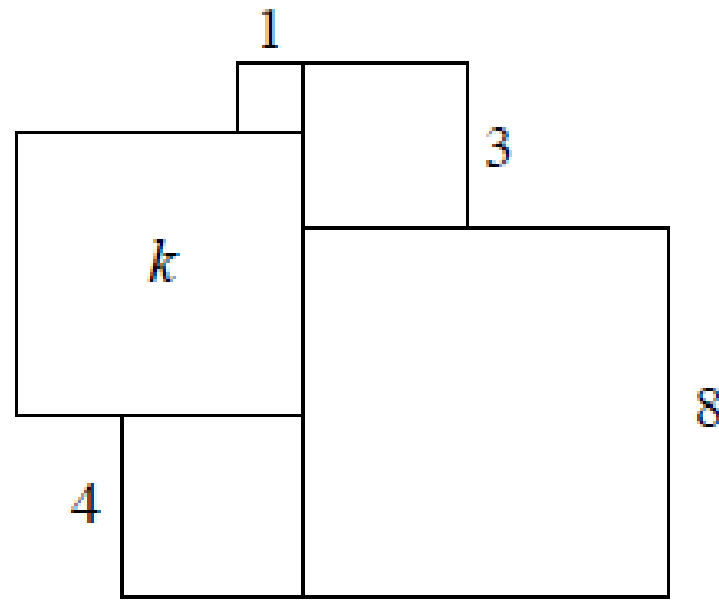
Rectangles that measure 4×2 are positioned in a pattern in which the top left vertex of each rectangle (after the top one) is placed at the midpoint of the bottom edge of the rectangle above it, as shown. When a total of ten rectangles are arranged in this pattern, what is the perimeter of the figure?

The number of dots on opposite faces of a regular die add to 7. Four regular dice are arranged as shown. Which of the following could be the sum of the number of dots hidden between the dice?

In the diagram, the side lengths of four squares are shown. The area of the fifth square is k. What is the value of k?

The Time of Your Life!

As you answer these questions, recall that there are 365 days in a year (except for a leap year), 24 hours in a day, 60 minutes in each hour, and 60 seconds in each minute.

a) The oldest human ever to have lived, according to the Guiness Book of Records, was 122 years and 164 days old at the time of her death. Jeanne Louise Calment (France) was born on February 21, 1875, and died at a nursing home in Arles, in southern France, on August 4, 1997. How many minutes was this person alive (assuming she was born and died at midnight on the given dates)?

b) If you were born on January 1, 2005, how many years old would you be when you celebrate the billionth second that you have been alive?
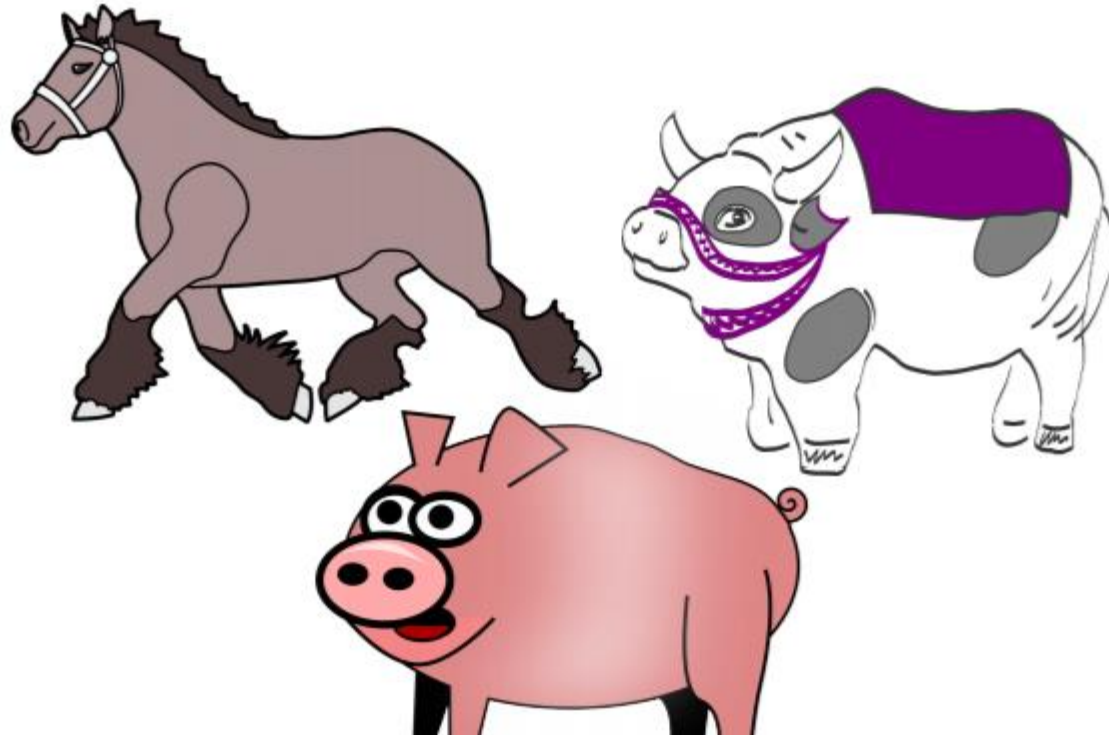

Jeanne Louise Calment 1996
Source: Wikipedia

And On This Farm

"Old MacDonald had a farm, E-I-E-I-O", says the old children's song. But Old MacDonald did have a farm! And on that farm he had some horses, cows, pigs and 69 water troughs for the animals to drink from. Only horses drank from the horse troughs, exactly two horses for each trough. Only cows drank from cow troughs, exactly three cows per trough. And only pigs drank from pig troughs, exactly eight pigs per trough. Old MacDonald's farm has the same number of cows, horses and pigs.

How many animals does Old MacDonald have on his farm?

What does it look like to assist others in the class – to be a good peer helper