

## 7 Cutting bagels

### Warm-up

**Problem 7.1** *Insert a + or - sign to make correct number sentences.*

$$3 \square 2 \square 1 = 0$$

$$3 \square 2 \square 1 = 2$$

$$3 \square 2 \square 1 = 4$$

$$3 \square 2 \square 1 = 6$$

### Lesson

In this lesson, we will be cutting bagels instead of logs. The rule is that a cut should go from the hole in the center to the edge of the bagel. Note that one cut DOES NOT make two pieces. Cut the bagel on the picture below to see how it works.



## Problem 7.2

- *If you cut a bagel with three cuts, how many pieces do you get?*



*I get \_\_\_\_\_ pieces.*

- *How many pieces do you get if you cut a bagel with five cuts?*

*I get \_\_\_\_\_ pieces.*

- *How about ten cuts?*

*I get \_\_\_\_\_ pieces.*

- *What is the general rule? Does it work for any number of cuts?*

**Problem 7.3** *You have two bagels.*

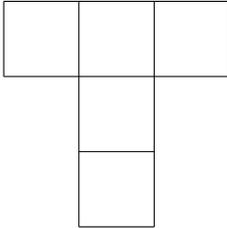


- *Make four cuts total. How many pieces do you get? Does it depend on how many cuts you make on each bagel?*

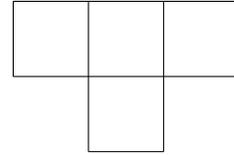
- *Take two bagels and make a total of seven cuts on them. How many pieces can you get? Try to find a general rule for the number of pieces you can get cutting two bagels.*

**Problem 7.4** *Alice got four bagel slices after making three cuts. How many bagels could she have started with? The problem has three different solutions. Try to find all of them.*

### Problem 7.5 )



*Use the grid below to draw a figure which can be made of four pieces on the left as well as of five pieces on the right.*



### Homework

- Finish solving all the problems from the class.
- Make your own problem about cutting logs or bagels. Write it down on an index card. Bring the card to the next class. You can ask your parents to help you write down the problem. We will solve some of your problems together.

**Problem 7.6** *A fence consists of five posts and some ropes hanging between the posts. How many ropes are there?*



*There are \_\_\_\_\_ ropes.*

**Problem 7.7** *A very long fence consists of eighty posts and ropes hanging between the posts. How many ropes are there?*

*There are \_\_\_\_\_ ropes.*

**Problem 7.8** *You want to use fifteen ropes of equal length to make a fence. How many posts do you need?*

*I need \_\_\_\_\_ posts.*