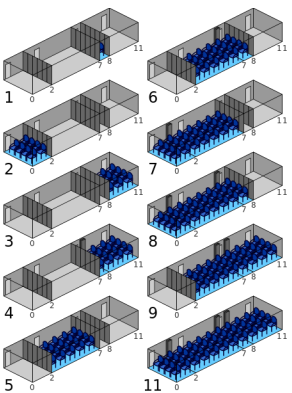
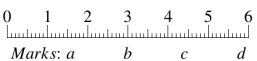
Example of a conference room with proportions of a [0, 2, 7, 8, 11] Golomb ruler, making it configurable to 10 different sizes.

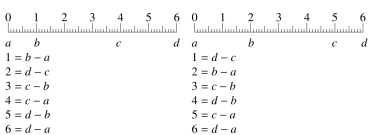


Highest order for Golomb ruler is 27

Golomb ruler

Define a ruler with $m = 4$ marks (e.g. a, b, c, d) so that the distances between any two marks are different. That is, if you can measure an integer distance with this ruler, there should be only one way of making this measurement with your ruler. Your ruler should be able to measure all the integer distances up to length $L = 6$.





Applications: radio astronomy (antennas in a [0,1,4,6] Golomb ruler configuration can often be seen cell sites.), X-ray crystallography, information theory

```
set(arithmetic).
assign(domain_size,7).
assign(max_models,-1).

formulas(assumptions).
  a < b & b < c & c < d.                %the marks are distinct
  a = 0.                                   %ruler starts with 0

  abs(a + (-b)) = 1 | abs(b + (-c)) = 1 | abs(c + (-d)) = 1 |
  abs(a + (-c)) = 1 | abs(a + (-d)) = 1 | abs(b + (-d)) = 1.

  abs(a + (-b)) = 2 | abs(b + (-c)) = 2 | abs(c + (-d)) = 2 |
  abs(a + (-c)) = 2 | abs(a + (-d)) = 2 | abs(b + (-d)) = 2.

  abs(a + (-b)) = 3 | abs(b + (-c)) = 3 | abs(c + (-d)) = 3 |
  abs(a + (-c)) = 3 | abs(a + (-d)) = 3 | abs(b + (-d)) = 3.

  abs(a + (-b)) = 4 | abs(b + (-c)) = 4 | abs(c + (-d)) = 4 |
  abs(a + (-c)) = 4 | abs(a + (-d)) = 4 | abs(b + (-d)) = 4.

  abs(a + (-b)) = 5 | abs(b + (-c)) = 5 | abs(c + (-d)) = 5 |
  abs(a + (-c)) = 5 | abs(a + (-d)) = 5 | abs(b + (-d)) = 5.

  abs(a + (-b)) = 6 | abs(b + (-c)) = 6 | abs(c + (-d)) = 6 |
  abs(a + (-c)) = 6 | abs(a + (-d)) = 6 | abs(b + (-d)) = 6.
end_of_list.
```