

Mathematical modeling (October 5): MTHHT 400
Methods of Teaching Secondary Mathematics I
FALL 2005

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We want to do a deeper analysis of the notion of mathematical modeling. On Monday we collected data on spreading out. Today we will discuss what mathematical model makes sense for each of the two problems (area and circumference) and how we can justify the choice of model. We also want to consider how to make group work more effective.

Use the groups from last time. The following persons: group I Erin, group II Malgorzata, group III Nez, group IV Majda will assume the role of ‘encourager’. They should try to make sure that each person contributes the group by asking questions and encouraging response.

1. One person from each group posts that groups data on the board as a clearly labeled table.
2. Problem: estimate area and ‘perimeter’ of paper towel. In your groups discuss the following questions. (10 min)
 - (a) What formula represents the relationship between
 - i. number of drops and area;
 - ii. number of drops and circumference?
 - (b) How do you know your model is ‘correct’?
 - (c) role of $(0, 0)$; computing the value for a rectangular towel: Are these really analogous problems; what is different?
3. whole class discussion (10 min)
4. Can we give a statistical explanation? (15 min) Enter data and use regression. Check r .
5. preview of homework (2 min)
6. introductory discussion of cooperative learning (10 min)