

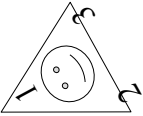
Montlake Math Challenge

January 29, 2009

The Happy Cheese Factory

At the Happy Cheese Factory, triangular blocks of cheese are packaged in cardboard containers that are shaped like the cheese. A block of cheese can fit into its container in a number of ways.

Problem 1: Last week, we saw that there are 6 ways the cheese can fit into its cardboard container. For each one, (1) draw a picture of the cheese and (2) write down the position of each of the corners. One example has been done for you.

Name of Move	Picture	Position of 1	Position of 2	Position of 3
O				
R1		2	3	1
R2				
F1				
F2				
F3				

Problem 2: When I write $F1 \diamond F2$, I mean that I will FIRST apply $F2$ THEN apply $F1$.

What does the triangle look like after I apply $F1 \diamond F2$? How about after I apply $F1 \diamond F1$? What moves in the table on Page 1 do these correspond to?

$F1 \diamond F2 =$

$F1 \diamond F1 =$

Problem 3: Fill in the following table by entering the result of [ROW \diamond COLUMN], and recognizing each entry as one of the moves from the table on page 1. For example, in row $F1$ and column $F2$, you would enter $F1 \diamond F2 = R2$, but in row $F2$ and column $F1$, you would enter $F2 \diamond F1$.

	O	R1	R2	F1	F2	F3
O						
R1						
R2						
F1					R2	
F2						
F3						