Problem set 6 (Assigned on October 24th)

For your excellent services in identifying knights and liars, the king decided to give you an award. You will receive either a huge cake of your choice (which you can eat) or a dragon (which eats you). You are shown two rooms each room contains a cake or a dragon (not both), but it could be that there were dragons in both rooms or cakes in all rooms. Your goal (naturally) is to find a room with a cake.

1. First trial: Assume one statement on the door of the room is true and the other one is false:

I
IN THIS ROOM THERE
IS A CAKE, AND IN
THE OTHER ROOM
THERE IS A DRAGON

II
IN ONE OF THESE ROOMS
THERE IS A CAKE, AND
IN ONE OF THESE ROOMS
THERE IS A DRAGON

Which room would you choose and why?

2. Second trial: Both statements are either true or both are false.

I
AT LEAST ONE OF THESE
ROOMS CONTAINS A CAKE

II
A DRAGON IS IN
THE OTHER ROOM

Which room would you choose and why?

3. The YumYum is an almost forgotten language. Here is a little poem in YumYum with the translation

Am	Ty	My	Ja	=	Giant cat was scary.
Ty	La	By	Am	=	Mouse saw giant cat.
Gy	La	Ty	Ja	=	Scary cat ate mouse.

Based on this, construct a fragment of a YumYum-English dictionary.

4.

Ron and Ginny are using a spring scale to weigh their book bags before a new school-year. When they are weighted separately, the scale shows 3kg and 2kg. When they weigh them together the scale shows 6kg.

"That can't be right" said Ginny. "Two plus three doesn't equal six!"

"Don't you see?" answered Ron. "The pointer on the scale is off."

How much do the book bags actually weigh?