

DISCUSSION FOR FIFTH TUTORIAL

DATE: NOVEMBER 18 AND 25, 2009

The makers of hot dogs and hot dog buns do not coordinate the number of hot dogs and buns to a package (who knows, maybe they even plan it so that it is difficult). I went to the store the other day and was only able to find hot dogs in packages of either 8 or 15. Hot dog buns on the other hand come in packages of 10 or 14.

If I wanted to make exactly 30 hot dogs I could buy 2 packages of 15 hot dogs. If I wanted to make only 25 hot dogs I would still have to buy at least 30 because no combination of 8 and 15 will make 25. What is the largest number of hot dogs that I *cannot* have using only packages of 8 and 15?

I also cannot have 25 buns. Two packages of 14 buns makes 28 and one package of 10 and one package of 14 makes 24. What is the largest number of hot dog buns that I *cannot* have?

More generally, if hot dogs (or anything else) comes in packages of r and s (where r and s are positive integers), how do we determine the largest number that we cannot have? Start experimenting with values like 2 and 3, or 5 and 9 and see if you can find the answer. Then try larger integers and try packages of different sizes.