



Problem of the Week

Problem A and Solution

Bean There; Done That

Problem

Suppose you want to make a four-bean salad using green beans, wax beans, kidney beans, and garbanzo beans. When you weigh the ingredients you notice the following:

- In total, the mass of all the beans in the salad is 1 kg.
- The sum of the mass of the garbanzo beans and the mass of the green beans make up half of the total mass of the beans in the salad.
- The masses of the garbanzo beans and the green beans are the same.
- The mass of the wax beans is 235 g.

What is the mass of each type of bean in the salad? Justify your answer.

Solution

We know that 1 kg equals 1000 g. Half the total mass of the beans is $1000 \div 2 = 500$ g. So the total mass of the garbanzo beans and the green beans is 500 g. Since the remaining salad is made up of the other two kinds of beans, the total mass of the wax beans and the kidney beans must also be 500 g.

Since the masses of the garbanzo beans and the green beans are the same, then each mass is equal to $500 \div 2 = 250$ g.

Since the mass of the wax beans is 235 g, then the mass of the kidney beans must be $500 - 235 = 265$ g.

In summary, the salad contains:

- 250 g of garbanzo beans
- 250 g of green beans
- 235 g of wax beans
- 265 g of kidney beans