Problem of the Week

Problem B

Sven's Gym-Cans

Recently, Sven decided to start exercising at home instead of going to the gym. He does not have the nice weights that they have at the gym, but he does have different containers of food that he can use as weights. Sven has containers of soup, beans, breadcrumbs, jam, and peanuts. He also has one can whose label fell off that he calls the Mystery Can.

Sven used his balance scale and came up with the following discoveries:

- Two cans of soup have the same mass as one can of beans.
- Five containers of breadcrumbs have the same mass as one jar of jam.
- One can of beans and two containers of bread crumbs together have the same mass as the container of peanuts.
- The Mystery Can and one can of soup together have the same mass as the container of peanuts.

Sven's friend, Rob, who has perfect estimation skills, determined that the Mystery Can has a mass of 580 grams and the can of beans has a mass of 640 grams. Assuming that Rob is correct, determine the mass of each container, in grams. To do so, you may find it helpful to set up algebraic equations to show the relationships among the cans' masses.