Problem of the Week
Problem B and Solution
Chip, Chip, Chooray!

Problem

At Biscuit Hill Elementary School, Chip and his sister, Charlene, have decided that they want to make cookies for all of the junior students in their school.

The recipe that they found makes enough chocolate chip cookies of 7 cm diameter for 16 people.

Recipe

1 cup	butter
1 cup	brown sugar
$\frac{1}{2}$ cup	white sugar
2	eggs
2 tsp	vanilla
$2\frac{1}{4}$ cups	flour
1 tsp	baking soda
300 g	chocolate chips

Junior Classes

Mrs. Martin	25 students
Mrs. Laing	26 students
Ms. Richmond	23 students
Mrs. Kelter	24 students
Mr. Hallett	22 students

a) How many batches should Chip and Charlene make so that they make the exact number of cookies needed for all of the students in the junior classes?

b) They decide to make a whole number of batches so that they have some extra cookies to save for later and one cookie for each teacher. What quantity of each ingredient in the recipe will they need?

Solution

a) There are $25 + 26 + 23 + 24 + 22 = 120$ students in total. Since one recipe makes enough cookies for 16 people, to make exactly enough, Chip and Charlene would need to make $120 \div 16 = 7.5$ batches.

b) Eight batches (128 cookies) will leave 5 for the teachers and 3 to save for later. Thus they will need to multiply all the measurements by eight to get;

$8 \times 1 = 8$ cups butter, $8 \times 1 = 8$ cups brown sugar,

$8 \times \frac{1}{2} = \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} = 4$ cups white sugar,

$8 \times 2 = 16$ eggs, $8 \times 2 = 16$ tsp vanilla,

$8 \times (2\frac{1}{4}) = 8 \times 2 + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} + \frac{1}{4} = 16 + \frac{8}{4} = 16 + 2 = 18$ cups flour,

$8 \times 1 = 8$ tsp baking soda, and $8 \times 300 = 2400$ g (2.4 kg) of chocolate chips.

(If they want more cookies left over, they will need more batches.)