



## Problem of the Week

### Problem B

### Don't Spill the Beans!

#### Problem

On a shelf in an old-fashioned candy store sits a jar of 120 jelly beans, some red, some white, and some green.

- If half of the jelly beans are red, and 20% are green, how many candies are there of each colour?
- Juming loves red jelly beans. She takes a scoopful of red jelly beans from the jar. After these are removed, only 40% of the remaining jelly beans in the jar are now red. What percentage of the remaining beans are green or white? (Keep in mind that the remaining beans in the jar are the new 100%.)
- How many red jelly beans did Juming scoop from the jar?

#### Solution

- There is a total of 120 jelly beans in the jar.
  - Half of 120 is  $\frac{120}{2} = 60$ , so 60 jelly beans are red.
  - 20% of 120 is  $\frac{120}{5} = 24$ , so 24 jelly beans are green.

Thus the number of white jelly beans is  $120 - 60 - 24 = 36$ .

- Since the remaining jelly beans are the new 100%, and 40% of these are red, therefore  $100\% - 40\% = 60\%$  of the jelly beans in the jar are now green or white.
- Since 40% is  $\frac{40}{60} = \frac{2}{3}$  of 60%, and there are still  $24 + 36 = 60$  green or white jelly beans, we see that there are  $\frac{2}{3} \times 60 = 40$  red jelly beans left in the jar. Thus, of the original 60 red jelly beans, Juming scooped  $60 - 40 = 20$  red jelly beans from the jar.

