



Problem of the Week

Problem A and Solution

Beaded Bracelets

Problem

Aditi and Ersal have designed a bracelet that has 17 beads. The bracelet has 6 red beads, 9 green beads, and the rest of the beads are yellow.

- (a) How many yellow beads are in one bracelet?
- (b) They want to make a total of 21 of these bracelets so they have one for everyone in their class. Each package of 24 beads has 8 red, 8 green, and 8 yellow beads in it. How many packages of beads do they need?

Solution

- (a) We can calculate the number of yellow beads by subtracting the number of red and green beads from the total, to get $17 - 6 - 9 = 2$ yellow beads.
- (b) Since they need more green beads than any other colour, to make 21 bracelets they need to buy enough packages for $21 \times 9 = 189$ green beads. Since each package has 8 green beads, one way to calculate how many packages we need is to divide $189 \div 8 = 23$ with a remainder of 5. This means they need to buy 24 packages to get enough green beads.

Alternatively, we know that 21 packages will contain 8 green beads that can be used to make each bracelet. However, they need one more green bead for each of the 21 bracelets. Now we calculate how many packages are needed for 21 more green beads. We can skip count: 8, 16, 24 to see we need 3 more packages to have at least 21 more green beads. From this we know that Aditi and Ersal need a total of $21 + 3 = 24$ packages of beads to make the bracelets.