# A couple of ratio problems . . .
and how to solve them WITHOUT algebra —

1) Stacy collects baseball cards. She has 132 cards in all. The ratio of National League cards to American League cards is 3:8. How many of her cards are National League players?

A solution strategy using bar models:

The ratio of 3:8 means that there are 11 units or parts in the entire collection because 3 + 8 = 11. Here's a bar model for that relationship:

Nat. ▯▯▯

= 132

Am. ▯▯▯▯▯▯▯▯
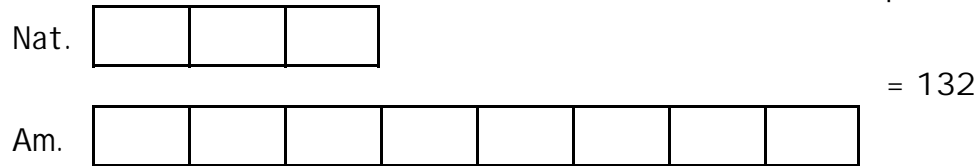
Since 11 equal parts total 132 cards, we can find the value of ONE part by dividing 132 by 11. The quotient is 12. She has 36 National League cards because 3 x 12 = 36.

2) The ratio of Terry's balloons to Jamil's balloons was 3:5. After Terry got 21 more balloons, he had twice as many as Jamil. How many balloons did Terry have in the beginning?

We can draw a bar model for their starting point like this:

T: ▯▯▯

J: ▯▯▯▯▯
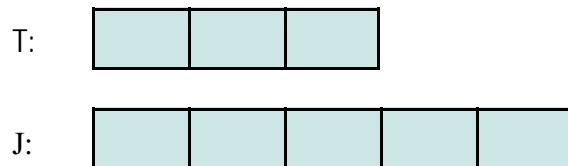
When Terry bought more balloons, his total was twice that of Jamil's. Since Jamil had 5 parts to Terry's 3, and Jamil's didn't change, Terry must now have 10 parts in order to have twice as many as Jamil:

? ——————— 21 ———————

T: ▯▯▯▯▯▯▯▯▯▯

J: ▯▯▯▯▯
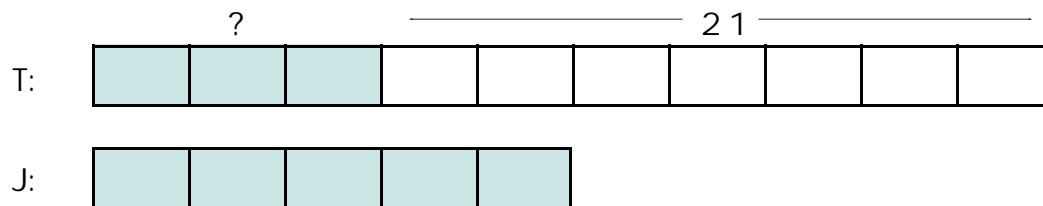
Those 7 new parts are made from the 21 balloons Terry bought. Each part is 1/7 of 21, or 3. So, if each part is worth 3, Terry started with 9 balloons.