4 Blazers Score 50 Points Problem

Four Blazers (Aldridge, Batum, Crawford and Wallace) combined to score 50 points last night. If they each scored at least two, but none scored 25 or more, how many possible totals could they have?

For example:

Aldridge – 20
Batum – 10
Crawford – 10
Wallace – 10

is one possible way it could have happened.

to make sure everyone scores at least two points, start by giving each player 1 point (44 left)

Now, allocate the remaining 46 by choosing three of the 45 places (arrows) below to place the partitions

1 ↑ 2 ↑ 3 ↑ 4 ↑ 5 ↑ ... ↓ ↓ ↓ ↓ ↓ 44 ↓ ↓ ↓ ↓ 45 ↑ 46

this gives \(^{45}\text{C}_3\) = 14190 combinations.

However, we've ignored the constraint that no player can score 25 or more. So we need to subtract all of those. How many to subtract?

Start by choosing the high scorer. Give him 24 points, and the other three players 1 point each. That leaves 50-27=23 points to allocate. Divide them by placing partitions as above; there are \(^{22}\text{C}_2\) = 1540 ways to do so, so 4·1540 = 6160 bad combinations.

This leaves 14190-6160 = 8030 total ways.