The first thing that we did after we looked at the question was to map out all 8 possibilities. We started out with six of the smaller number, and ten of the larger number. After that, we reversed the location of the two numbers. The sums of the first sets (with 6 of the smaller numbers and 10 of the bigger numbers) were 36, 52, 68, and 84. After looking at the numbers, we noticed that the sums of the sets increased by 16 each time. The sums of the second sets (with 6 of the larger number and 10 of the smaller number) were 28, 44, 60, and 76. We noticed that the sums of these sets also increased by 16, and that they were 8 smaller than the sums of the first sets. This was because in the second sets, there were less of the larger numbers, and more of the smaller numbers.

68

3	3	3	5
3	3	5	5
3	5	5	5
5	5	5	5

52

2	2	2	4
2	2	4	4
2	4	4	4
4	4	4	4

36

1	1	1	3
1	1	3	3
1	3	3	3
3	3	3	3

60

5	5	5	3
5	5	3	3
5	3	3	3
3	3	3	3

44

4	4	4	2
4	4	2	2
4	2	2	2
2	2	2	2

28

3	3	3	1
3	3	1	1
3	1	1	1
1	1	1	1

84

4	4	4	6
4	4	6	6
4	6	6	6
6	6	6	6

76

6	6	6	4
6	6	4	4
6	4	4	4
4	4	4	4

If you want the sum to be 42, you would have to change the ratio from 6:10 to 5:11. You would have to use 5 fours and 11 twos.

OR

You could change the difference between the numbers. $(2 \times 6) + (3 \times 10)$

Isaac Kan, age 11

Samantha Schmid, age 11

Archway Classical Academy - Chandler

USA