Question

The average of 15 integers strictly greater than 70 is 85. Among them 14 integers are strictly greater than 85. What is the remaining number?

Solution

The 14 integers are strictly greater than 85. Thus, each of them exceeds the average of 85 by more or equal to 1.

So, their sum exceeds $14 \cdot 85$ by more or equal to 14. For total average of 85 the remaining number needs to be less than 85 by not less than 14:

$$R \leq 85 - 14 = 71.$$

But each of these 15 integers is strictly greater than 70. So, the remaining number cannot be less than 71:

$$R \geq 71.$$

From these two inequalities we can find that

$$R = 71.$$

Answer: 71.