Question #53152, Math / Other

A cube is cut into 216 identical smaller cubes. In how many different ways can the smaller cubes be arranged to form cuboids of different surface areas if no two cubes are to be placed one above another?

(1) 6

(2) 8

(3) 14

(4) 16

Answer.

$$\mathbf{216 = 2 * 2 * 2 * 3 * 3 * 3}$$

So we can arrange the cuboids:

$$\mathbf{2 * 108 * 1,\ \ 4 * 54 * 1,\ \ 8 * 27 * 1,\ \ 6 * 36 * 1,\ \ 12 * 18 * 1,\ \ 24 * 9 * 1,}$$

i.e. 6 different cuboids.