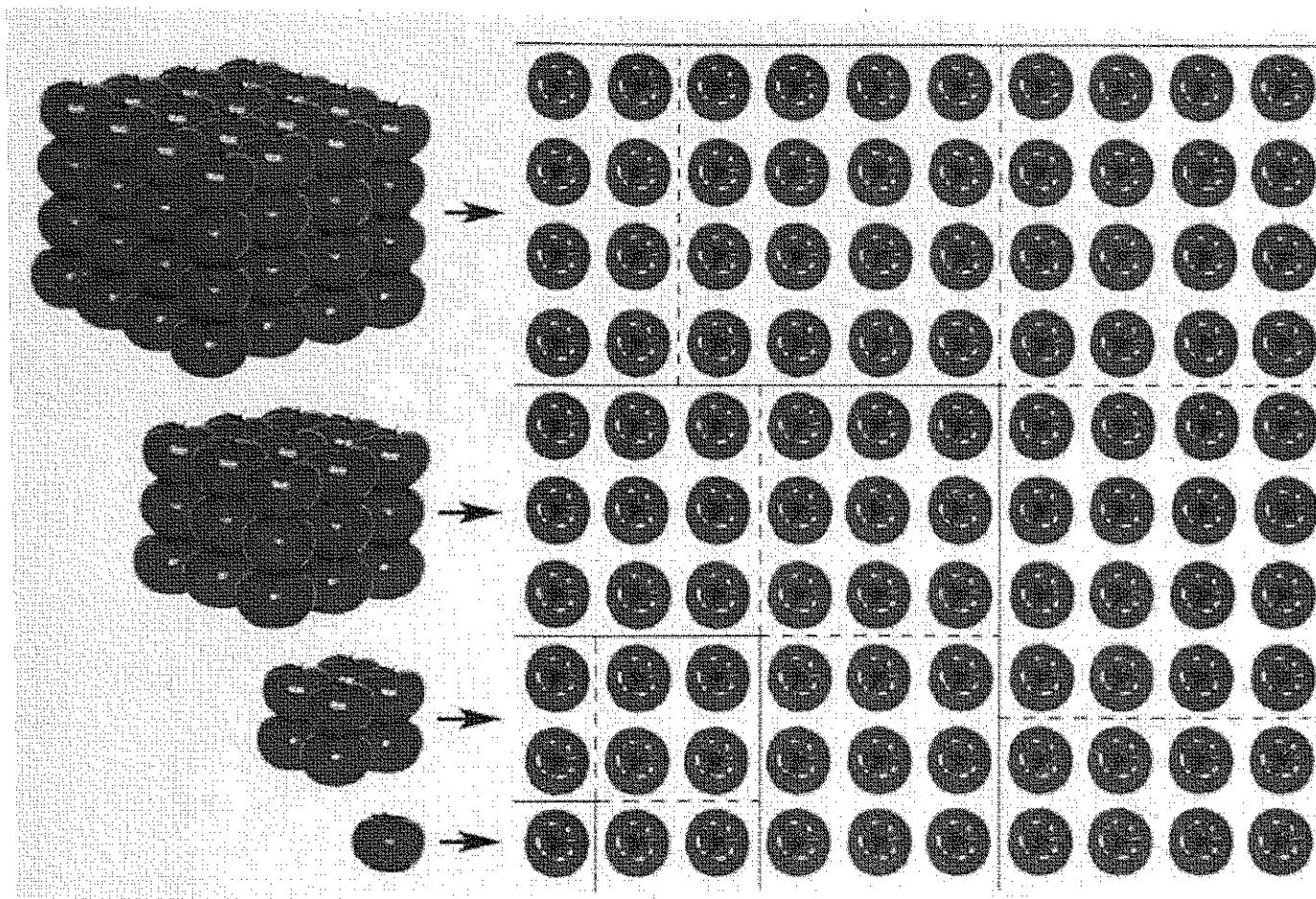


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Homework #6

1. The picture below is called *Proof by Tomatoes*. What does the picture prove? Explain why it proves what it does. Give an inductive proof of your result.



2. Consider the formula

$$\int_0^{\alpha} x^3 dx = \left(\int_0^{\alpha} x dx \right)^2$$

where $\alpha \geq 0$ is a real number. Check that this formula is true, and then explain how it might relate to your work in Problem 1. What further information does it give you?