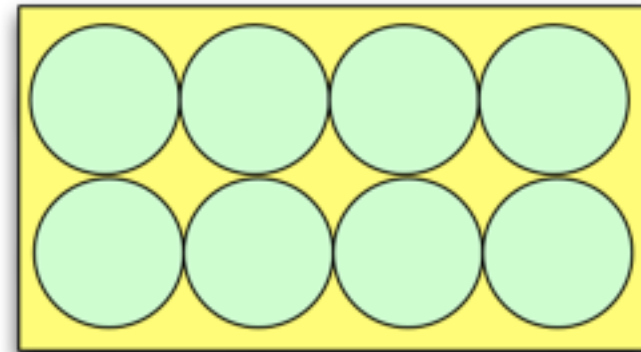Suppose I have a block of matter with 8 two-state "Degrees of Freedom" (bins in which to place energy that can only hold 1 energy packet).

I have 2 packets of thermal energy. 🔥🔥
How many ways are there
to distribute 2 packets?
*(i.e., How many microstates
are there?)*

1. 16
2. 15
3. 8
4. 64
5. 56
6. 32
7. 28
8. Something else
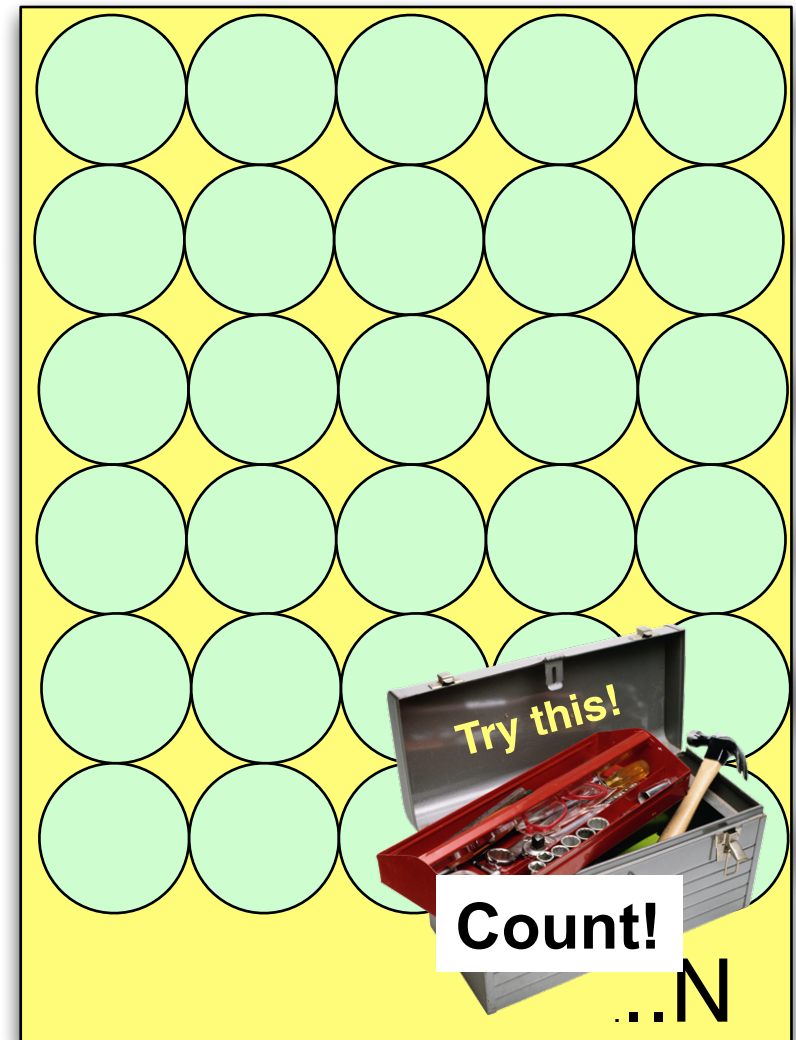9. It cannot be determined

Try this!

Count!

Suppose I have a block of matter with N two-state "Degrees of Freedom" (bins in which to place energy that can only hold 1 energy packet). 🔥🔥

I have 2 packets of thermal energy. How many ways are there to distribute 2 packets?

1. 2N
2. 2N-1
3. N^2
4. N(N-1)
5. $N^2/2$
6. N(N-1)/2

7. Something else
8. It cannot be determined

Try this!

Count!

...N

Suppose I have a block of matter with 4 two-state "Degrees of Freedom" (bins in which to place energy that can only hold 1 energy packet).

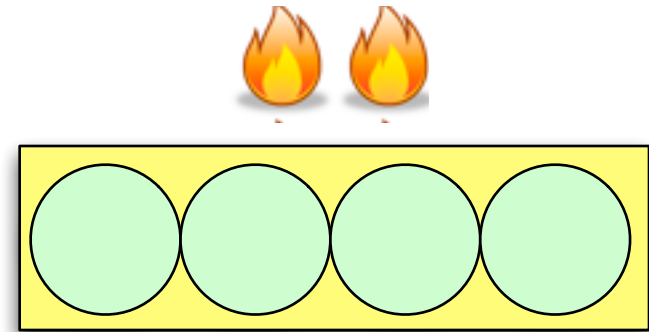I have 2 packets of thermal energy. How many ways are there to distribute 2 packets?
(i.e., How many microstates are there?)

🔥🔥

Try this!

Count!

Suppose I have two blocks of matter, each with 4 two-state "Degrees of Freedom" (bins in which to place energy that can only hold 1 energy packet).

I have 2 packets of thermal energy. How many ways are there to distribute 2 packets among both blocks compared to the number of ways to distribute 2 packets to one block?

🔥 🔥
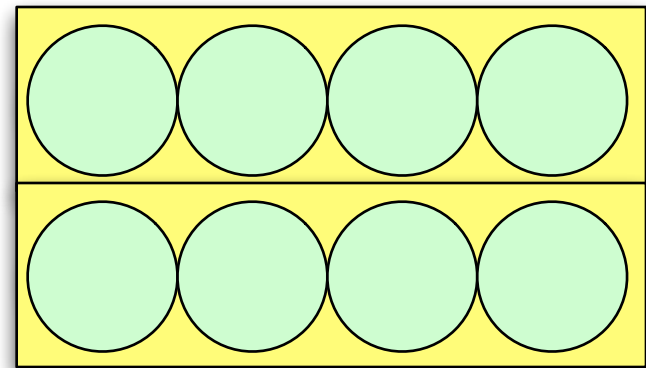
1. Twice as high
2. Four times as high
3. Eight times as high
4. More than eight times as high
5. Not enough information

Try this!

Count!