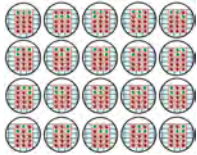


- 1 How many distinguishable ways can 3 ink molecules be arranged in the top two layers of a column of water three molecules wide.



- A 20
B 36
C 720
- 2 How many distinguishable ways can n different objects be arranged?
- A n
B n^2
C nn
D $n!$
- 3 How many ways (distinguishable or not) can w identical objects be arranged?
- A w
B w^2
C wn
D $w!$
- 4 How many ways can w different objects and i different objects (a total of $w + i$ different objects) be arranged?
- A $w + i$
B $(w + i)^2$
C $(w + i)(w + i)$
D $(w + i)!$
- 5 What is true about the number, $Wp(w, i)$, of distinguishable ways that w identical objects of one kind and i identical objects of another kind (a total of $w + i$ different objects) be arranged?
- A $Wp(w, i) * w! * i! = (w + i)!$
B $Wp(w, i) = w! * i!$
C $Wp(w, i) = (w + i)!$
- 6 How many distinguishable ways can w water molecules and i ink molecules be arranged?
- A $w! * i!$
B $(w + i)! / (w! * i!)$
C $(w * i)!$
D None of the above.

7 How many distinguishable ways can 2 water molecules and 2 ink molecules be arranged?

- A 4
- B 6
- C 24
- D None of the above.

8 How many distinguishable ways can 3 water molecules and 2 ink molecules be arranged?

- A 10
- B 12
- C 120
- D None of the above.

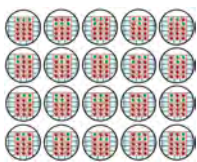
9 How many distinguishable ways can 4 water molecules and 2 ink molecules be arranged?

- A 15
- B 48
- C 720
- D None of the above.

10 How many distinguishable ways can 5 water molecules and 2 ink molecules be arranged?

- A 21
- B 240
- C 5040
- D None of the above.

11 How many distinguishable ways can 3 ink molecules be arranged in the top two layers of a column of water three molecules wide?

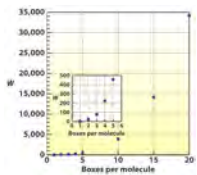


- A 20
- B 455
- C 720

- 12 How many distinguishable ways can 3 ink molecules be arranged among 12 water molecules?



- A 36
B 455
C 720
- 13 How many distinguishable ways can 3 ink molecules be arranged among 27 water molecules?



- A 20
B 36
C 720
D None of these