

In how many ways can the word "HOSPITAL" be arranged?

- a. 924
- b. 120
- c. 45040
- d. 40320

**Solution**

The word "HOSPITAL" consists of 8 different letters.

We have 8 ways to pick the first letter times. Next we have 7 ways to pick the second letter times. And we have 6 ways to pick the 3rd letter and so on...

Altogether:

Number of ways  $= 8 * 7 * 6 * ... * 1 = 8! = 40320$ .

Where  $8!$  means factorial of 8. In mathematics, the factorial of a non-negative integer  $n$ , denoted by  $n!$ , is the product of all positive integers less than or equal to  $n$ .

**Answer: d. 40320.**