

BE-1B Monday 4-23-07

- ① 3 taxi AND 4 limosine services to B'ham. From there, 2 taxi, 2 limos to Tuscaloosa. How many ways to get to UAT?
- ② Snead has 6 fresh MATH classes ; 4 English and 5 humanities classes. How many possible schedules?

Monday $\Rightarrow$ Permutations (Ref. Ch. 14-2)
Tues $\Rightarrow$ Practice (IG Worksheet)
Weos $\Rightarrow$ Quiz 5

①

THE TYPE OF ARRANGEMENTS WE
HAVE BEEN DEALING WITH ARE
CALLED "PERMUTATIONS."



ORDER IS IMPORTANT

A B C IS NOT THE SAME
AS A C B

EX) NUMBER OF WAYS 6 BOOKS ON SHELF
CAN BE ARRANGED: $6!$

EX) NUMBER OF WAYS 6 BOOKS CAN BE
ARRANGED ON SHELF THAT ONLY HOLDS
2 BOOKS: $6 \cdot 5$ OR $\frac{6!}{4!}$

②

The case of 6 books on a shelf that holds 2 is:

6 books taken 2 at a time

It is a permutation and is written

$${}_6P_2$$

where ${}_6P_2 = \frac{6!}{4!}$

$\uparrow \quad \uparrow$
 $N \quad r$

or $6 \cdot 5$
(FCP way)

General: ${}_NP_r = \frac{N!}{(N-r)!}$

Note: ${}_6P_6$ means $\frac{6!}{(6-6)!} = \frac{6!}{0!} = \frac{6!}{1}$

6 books taken 6 at a time

How about ${}_6P_1$?

$$\frac{6!}{5!} = \frac{\cancel{6 \cdot 5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}}{\cancel{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1}}$$

Six books taken one at a time

EX1
Pg
760

4 people apply for 2 positions,
how many ways can they be
hired?

$${}_4P_2 = \frac{4!}{2!} = 4 \cdot 3 = \boxed{12}$$

- Read Ch 14-2
- Pg 765# 22, 23, 28, 29.