

NAME

QUARTER

GRADE &amp; SECTION

DATE

## Activity: Permutation

**PERMUTATIONS** An arrangement or listing in which order or placement is important is called a **permutation**.

### Permutations of $n$ Objects Taken $r$ at a Time

The number of permutations of  $r$  objects taken from a group of  $n$  distinct objects is denoted by  ${}_nP_r$  and is given by this formula:

$${}_nP_r = \frac{n!}{(n-r)!}$$

Set up the formula then find the permutations of  $n$  objects taken  $r$  at a time.

- The manager of a coffee shop needs to hire two employees, one to work at the counter and one to work at the drive-through window. Kim, Ben, Alicia, and Jerry all applied for a job. How many possible ways are there for the manager to place the applicants?

This is the permutation of  objects taken  at a time.

That will be  $P$  =  $\frac{\text{!}}{(\text{} - \text{})!}$

Therefore, there are \_\_\_\_\_ different ways for the 4 applicants to hold the 2 positions.

- A word processing program requires a user to enter a 7-digit registration code made up of the digits 1, 2, 4, 5, 6, 7, and 9. Each number has to be used, and no number can be used more than once.

This is the permutation of  objects taken  at a time.

That will be  $P$  =  $\frac{\text{!}}{(\text{} - \text{})!}$

Therefore, there are \_\_\_\_\_ possible codes with the digits 1, 2, 4, 5, 6, 7, and 9.

- A Mathematics club is electing a president, vice president, and secretary. The club has 18 members who are eligible for these officer positions. How many different ways can the 3 officer positions be filled?

This is the permutation of  objects taken  at a time.

That will be  $P$  =  $\frac{\text{!}}{(\text{} - \text{})!}$

Therefore, there are \_\_\_\_\_ different ways that the three officer positions can be filled.

How many attempts? \_\_\_\_.  
How well did you do?



Need help!



Just OK!



Splendid

I HAVE TO...