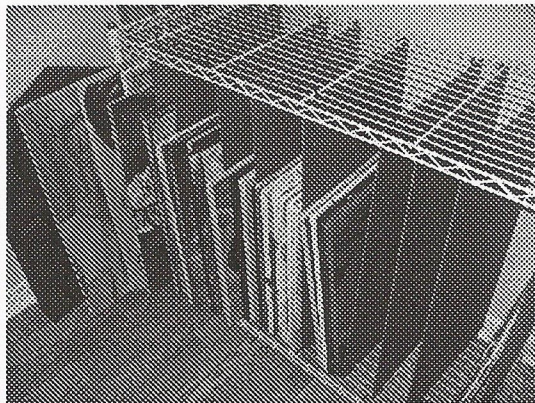


Quiz 1

STAT 381, APPLIED STATISTICAL METHODS I, SPRING 2015

NAME: Solutions

Problem 1. You have 15 paintings in storage. Assume they are all different. You may leave your answers unsimplified (e.g. $5^2 \binom{6}{3} 7!$).



- a. (3 points) In how many ways can they be lined up next to each other in storage, assuming they are all facing the same direction?

$$15! \approx 1.308 \times 10^{12}$$

- b. (3 points) Suppose you have 4 spots on your wall for paintings. In how many ways can you select and hang 4 paintings?

$${}_{15}P_4 = 32760$$

or ${}_{15}C_4 \cdot 4!$

or $\frac{15!}{11!}$

- c. (4 points) Suppose you want to hang 4 paintings on the wall (as in b), ship 5 paintings to your brother and 3 paintings to your sister. In how many ways can this be done?

$${}_{15}P_4 \cdot \binom{11}{5} \cdot \binom{6}{3} = 302,702,400$$

or $\frac{15!}{11!} \cdot \frac{11!}{5!6!} \cdot \frac{6!}{3!3!} = \frac{15!}{5!3!3!}$