

Discrete Math  
Quiz 10

Name: \_\_\_\_\_

You have 10 minutes to complete this quiz. If you have a question raise your hand and remain seated. In order to receive full credit your answer must be **complete**, **legible** and **correct**. Show your work, and give adequate explanations.

1. How many different strings can be formed by rearranging the letters of MISSISSIPPI?

$$\binom{11}{1,2,4,4}$$

2. How many ways are there to make 3 fruit baskets from 8 pineapples, 10 pomegranates, 6 coconuts and 20 figs if each basket must contain each kind of fruit?

Let the 3 baskets be boxes, and distribute the identical fruit one at a time. There are

- $\binom{8-1}{3-1} = \binom{7}{2}$  ways to distribute the pineapples,
- $\binom{10-1}{3-1} = \binom{9}{2}$  ways to distribute the pomegranates,
- $\binom{6-1}{3-1} = \binom{5}{2}$  ways to distribute the coconuts, and
- $\binom{20-1}{3-1} = \binom{19}{2}$  ways to distribute the figs.

Thus, the number of ways to make 3 baskets is  $\binom{7}{2} \binom{9}{2} \binom{5}{2} \binom{19}{2}$ .