

Advanced Functions and Modeling
Counting and Probability
Quiz 1

Name Key

20

- ④ 1. A beauty salon has 2 assistants who wash the hair, 6 stylists who cut hair, and 3 manicurists. By how many different arrangements of the personnel in the salon may a woman have her hair washed, cut, and then have her nails done?

$$2 \cdot 6 \cdot 3$$

1. 36

- ④ 2. In how many ways can the letters of the word RALEIGH be arranged if the first letter must be a consonant and the middle letter must be e?

$$\frac{4}{C} \cdot \frac{5}{E} \cdot \frac{4}{E} \cdot \frac{1}{E} \cdot \frac{3}{E} \cdot \frac{2}{E} \cdot \frac{1}{E}$$

2. 480

- ④ 3. In the Summer Olympics, eight swimmers competed in the medal round in each individual event. Gold, silver, and bronze medals were awarded to the top three finishers. In how many ways could the medals be awarded for each event?

$$\frac{8}{G} \cdot \frac{7}{S} \cdot \frac{6}{B}$$

3. 336

- ④ 4. USA Today had a "Matching Picture" contest in which the object was to match the pictures of 6 former Presidents of the United States with their baby pictures. How many different entries would you have to send in to be sure of having the pictures matched correctly? (Hint: think about how a matching section is organized on a quiz or test)

$${}_{45}P_6 \text{ or } {}_6P_6$$

4. 720

5,864,432,000

- ④ 5. How many different license plates can be made with 3 letters followed by 4 numbers if the letters I, O, and Z cannot be used (look too much like 1, 0, and 2) and the numbers cannot repeat?

$$\frac{23}{I} \frac{23}{O} \frac{23}{Z} \frac{10}{1} \frac{9}{0} \frac{8}{2} \frac{7}{}$$

5. 61,321,680