

Day 5 HW

Monday, November 30, 2015 11:29 AM

Directions: Determine if each scenario below describes a permutation or combination (is order important). From there, find the number of possibilities.

1. How many different seven-character license plates (consisting of letters or numbers) contain the four letters in MATH (not necessarily in that order)?

$$\underline{1} \cdot \underline{1} \cdot \underline{1} \cdot \underline{1} \cdot \underline{36} \cdot \underline{36} \cdot \underline{36} \cdot \frac{7!}{3!}$$

2. How many different ways can Mr. Griffin pick 3 star students from our class of 30 students?



$$30 C_3$$

3. How many different ways can Mrs. Walker choose three award recipients, most improved, best attitude, and most creative from our class of 30 students?

$$30 P_3$$

4. How many different ways can a three digit security pin number be chosen if repeated digits are allowed?

$$10 \cdot 10 \cdot 10 = 10^3$$

5. Peter, Paul and Mary are new students. There are three vacant lockers in the building. How many different ways can Peter, Paul and Mary be assigned to a locker?



$$3!$$

6. Tim is dealt a five card hand from a 52 card deck. How many different ways can he be dealt all hearts?

$$13 C_5$$

7. There are two driver's education cars at Hinsdale Central High School. How many different ways can Lizzie and Allison be assigned to a car?

$$2! = \boxed{2}$$

8. There are 3 prizes for a charity raffle: a trip to Hawaii, a new car, and a free haircut. Kris, Kurt and Gina have been notified that they have won a prize. How many different ways can the prizes be awarded?



$$3!$$

9. Three senior scholarships of \$1,000 will be awarded to three lucky recipients. How many different ways can the prize money be awarded if 15 seniors applied for the scholarship?

$$15^C_3$$

10. 8 groups of the same size arrive at a restaurant at the same time. The waitress can only seat 3 of the groups. How many ways can she seat them?

$$8^P_3 / 8^C_3$$

11. A radio station is giving away 5 trips to the 15 people that qualified to win. First prize is a trip to Hawaii, second prize is a trip to Las Vegas, third prize is a trip to Los Angeles, fourth prize is a trip to the Smokies, and fifth prize is a trip to Downers Grove. How many ways can the winners be selected?

$$15^P_5$$

12. The radio station producer has a change of heart and changes the prize so that all five prizes will be trips to Las Vegas. How many ways can the winners be selected?



$$15^C_5$$