

**A2.S.12: Sample Space: Use permutations, combinations, and the Fundamental Principle of Counting to determine the number of elements in a sample space and specific subset (event)**

- 1 A committee of five members is to be randomly selected from a group of nine freshmen and seven sophomores. Which expression represents the number of different committees of three freshmen and two sophomores that can be chosen?
  - 1)  ${}_9C_3 + {}_7C_2$
  - 2)  ${}_9C_3 \cdot {}_7C_2$
  - 3)  ${}_{16}C_3 \cdot {}_{16}C_2$
  - 4)  ${}_9P_3 \cdot {}_7P_2$
  
- 2 A school math team consists of three juniors and five seniors. How many different groups can be formed that consist of one junior and two seniors?
  - 1) 13
  - 2) 15
  - 3) 30
  - 4) 60
  
- 3 Erica cannot remember the correct order of the four digits in her ID number. She does remember that the ID number contains the digits 1, 2, 5, and 9. What is the probability that the first three digits of Erica's ID numbers will all be odd numbers?
  - 1)  $\frac{1}{4}$
  - 2)  $\frac{1}{3}$
  - 3)  $\frac{1}{2}$
  - 4)  $\frac{3}{4}$
  
- 4 A committee of 5 members is to be randomly selected from a group of 9 teachers and 20 students. Determine how many different committees can be formed if 2 members must be teachers and 3 members must be students.

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**Answer Section**

1 ANS: 2 REF: 010628a

2 ANS: 3  
 ${}_3C_1 \cdot {}_5C_2 = 3 \cdot 10 = 30$

REF: 061422a2

3 ANS: 1  
 $\frac{3!}{4!} = \frac{6}{24} = \frac{1}{4}$

REF: spring9820a

4 ANS:  
41,040

REF: fall0935a2