A2.S.9: Differentiate between situations requiring
permutations and those requiring combinations

1. 060426a, P.I. A2.S.9

   In a game, each player receives 5 cards from a
   deck of 52 different cards. How many
   different groupings of cards are possible in
   this game?

   [A] $\dfrac{52!}{5!}$ [B] $5!$ [C] $_{52}P_5$ [D] $_{52}C_5$

2. 080816a, P.I. A2.S.9

   A teacher wants to divide her class into
   groups. Which expression represents the
   number of different 3-person groups that can
   be formed from a class of 22 students?

   [A] $_{22}P_3$ [B] $3!$

   [C] $22 \cdot 21 \cdot 20$ [D] $_{22}C_3$

3. 010307a, P.I. A2.S.9

   There are 12 people on a basketball team, and
   the coach needs to choose 5 to put into a
   game. How many different possible ways can
   the coach choose a team of 5 if each person
   has an equal chance of being selected?

   [A] $_{12}C_5$ [B] $_5P_{12}$ [C] $_5C_{12}$ [D] $_{12}P_5$

4. 010628a, P.I. A2.S.9

   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?

   [A] $_9C_3 \cdot _7C_2$ [B] $_9C_3 + _7C_2$

   [C] $_{16}C_3 \cdot _{16}C_2$ [D] $_9P_3 \cdot _7P_2$

5. 010929a, P.I. A2.S.9

   A basketball squad has ten players. Which
   expression represents the number of five-
   player teams that can be made if John, the
   team captain, must be on every team?

   [A] $_{10}C_5$ [B] $_9P_4$ [C] $_9C_4$ [D] $_{10}P_5$

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[1] D

[2] D

[3] A

[4] A

[5] C