

SHORT ANSWER. Write the word or phrase that best completes each statement or answers the question.

- 1) (a) Compute  $\binom{4}{1, 1, 2}$  1) \_\_\_\_\_  
(b) List all ordered partitions of {a, b, c, d} of type (1, 1, 2).

- 2) Let S be a set with 6 elements. Compute the number of ordered partitions of type: (1, 2, 3). 2) \_\_\_\_\_

- 3) List 3) \_\_\_\_\_  
(b) All unordered partitions of {a, b, c, d, e, f} of type (2, 2, 2)

- 4) Let S be a set with 6 elements. Determine the number of unordered partitions of S of type: (3, 3). 4) \_\_\_\_\_

Solve the problem.

- 5) Ten sweepstakes prizes are awarded among ten winners: one \$10,000 grand prize, two \$5000 second prizes and seven \$1000 third prizes. In how many ways can this be done? 5) \_\_\_\_\_

- 6) In how many ways can five pairs of socks be chosen from a collection of ten socks? 6) \_\_\_\_\_

- 7) The human resources director of a small company interviewed nine people for an entry-level position. Two were rated as highly qualified, five were rated as qualified, and two were rated as unqualified. In how many different ways could the ratings be assigned? 7) \_\_\_\_\_

- 8) A mathematics instructor divides her 24 students into groups of four people to work on a project. If each group works on the same project, compute the number of ways in which the class can be divided. (Do not evaluate) 8) \_\_\_\_\_

- 9) A project manager oversees 12 employees. How many ways can the employees be divided into four groups of three? 9) \_\_\_\_\_

- 10) Try to calculate  $\binom{20}{4, 5, 6, 7}$ . What is incorrect about this expression? 10) \_\_\_\_\_