

Consider the recurrence relation below for questions 7 – 9.

$$a_n = 9a_{n-1} - 14a_{n-2}$$
$$a_0 = 1; a_1 = 17$$

7) Find a solution to the recurrence relation.

8) Find the general solution to the recurrence relation.

9) Find the particular solution to the recurrence relation with the given initial conditions.

10) A book publishing company is shipping out the latest best-seller today. They are going to ship 1,000 copies divided in some manner between 7 retailers. How many ways can they divide the books between the retailers?

11) Karl is giving out jelly beans. Every jelly bean is a different flavor, and Karl managed to get 33 different flavors! How many ways can he give 10 to you, 10 to Dr. Beyerl, and keep 13 for himself?

12) Calculate $\binom{4}{3}$. (Do the arithmetic until you get a single number as your answer)