

1. How many 5-card hands (from a 52-card deck) with 1 spade, 2 hearts, and 2 others from remaining suits can be dealt?  
(suits: spades, clubs, hearts, diamonds)
2. How many ways can 3 marbles be selected from a bag containing 4 green and 5 red marbles if all marbles must be the same color?
3. The first three terms of  $(x-y)^{22}$  are  $x^{22} - 22x^{21}y + 231x^{20}y^2$ . Write the last three terms.
4. Find the eighth term of  $(2x-3)^{15}$ .
5. Write the first four terms of  $(1+2x)^{16}$ .

use binomial theorem