Question 1

Example 8: How many ways are there to deal 5-card poker hands from a 52 card deck to each of the four players
147826284347564020034240 ways
Question 1b: A professor packs her collection of 40 issues of a mathematics journal in four boxes with 10 issues per box. How many ways can she distribute the journals if each box is numbered, so that they are distinguishable?
4705360871073570227520 ways

Question 2

Example 9: How many ways are there to place 10 indistinguishable balls into 8 distinguishable bins?
19448 ways
Question 2b: How many ways are there to distribute 12 indistinguishable balls into six distinguishable bins?
6188 ways

Question 3

Example 10: How many ways can Anna, Billy, Caitlin, and Danny be placed into three indistinguishable homerooms?
14 ways
Question 3b: How many ways are there to put five temporary employees into four identical offices?
51 ways

Question 4

Example 11: How many ways can you pack six copies of the same book into four identical boxes?
9 ways
Question 4b: How many ways are there to distribute five indistinguishable objects into three indistinguishable boxes?
5 ways