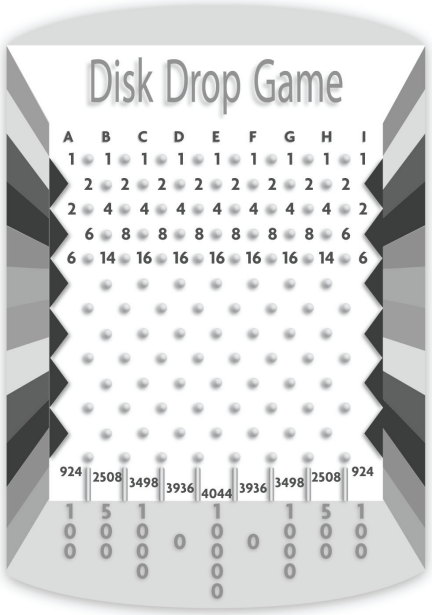
From the table, I see that 14 different arrangements might be made.
b) e.g., From the table above, 1 out of the 14 arrangements, from left to right, would be red, white, white, red. Therefore, there is a 1 in 14 chance that the arrangement, from left to right, would be red, white, white, red.

Applying Problem-Solving Strategies, page 270

A. 4044 paths



B. 2(924) + 2(2508) + 2(3498) = 13 860 paths

C. Yes. There are 2(3936), or 7872, paths that lead to no money at all, but 17 904 paths that result in the contestant winning something. The contestant has a better chance of winning something than nothing, so it's a fair game from the contestant's point of view.

Lesson 4.5: Exploring Combinations, page 272

1. a) Let W represent the number of ways:
$W = 3!$
$W = 3 \cdot 2 \cdot 1$
$W = 6$
There are 6 different ways that Brian, Rachelle, and Linh can be chosen for these jobs.

b)

Canned Goods	Dry Goods	Fruits and Vegetables
Brian	Rachelle	Linh
Brian	Linh	Rachelle
Rachelle	Brian	Linh
Rachelle	Linh	Brian
Linh	Rachelle	Brian
Linh	Brian	Rachelle

c) Since all 3 volunteers are being used to help unload the vehicles, there is only one way they can be chosen for this job.
d) Part a) and b) involve permutations and part c) involved combinations. I know because in part a) and b), the order in which the volunteers were selected for the jobs mattered. In part c) the order did not since all the volunteers were being selected to do the same job.

2. e.g., The main difference is that for the permutations, the order of the 4 objects matters, and for the combinations, it does not. For the permutations, you could have multiple arrangements with the same objects since there is more than one way to order a group of four different objects. This is not possible for combinations since you just need one arrangement for each group of 4, regardless of the order.

3. Let C represent the number of dance committees possible:
$C = {}_{10}C_4$
$C = 210$
There are 210 ways that 4 of the members can be chosen to serve on the dance committee.

4. Let C represent the number of combinations:
$C = {}_{12}C_3$
$C = 220$
There are 220 ways 3 of the 12 dogs can be selected to appear.

Lesson 4.6: Combinations, page 280

1. a)

Flavour 1	Flavour 2
vanilla	strawberry
vanilla	chocolate
vanilla	butterscotch
strawberry	vanilla
strawberry	chocolate
strawberry	butterscotch
chocolate	vanilla
chocolate	strawberry
chocolate	butterscotch
butterscotch	vanilla
butterscotch	strawberry
butterscotch	chocolate