Answers:

1) a. 2/3
b. 1/2

2) (p^2 * (1+q)) /(1-pq) = (p^2 * (2-p)) /(1-p+p^2)

3) 0.305

4) Monty hall problem (P(winning by not switching)= ⅓ and P(winning by switching)= ⅔)

5) 5/11

6) ⅓, ½, ½

7) 1/8 , 11/48, 6/11.

8) 1 - 1/e

9) 100C3

10) a) 20Ck*((0.3)^k)((0.7)^(20-k))
b)(30Ck*70C(20-k))/100C20

11) Father-Mother-Father

12) Mike and James have a 1/2 chance of winning

13) Say 200 people took the interview, Ans : 19/34

14) http://www.greenteapress.com/thinkbayes/html/thinkbayes002.html

15) https://math.dartmouth.edu/~pw/solutions.pdf

16) Place 1 white marble in one bowl, and place the rest of the marbles in the other bowl (49 whites, and 50 blacks).

17) Option A

18) 1/2