

## Answer Key of Review 1

1. (a)  ${}_{10}C_3 \cdot (0.3)^7(0.7)^3 \simeq 0.009$   
(b)  ${}_{10}C_2(0.3)^2(0.7)^8 \simeq 0.23347$
2. (a)  $6! = 720$   
(b)  ${}_6P_4 = \frac{6!}{2!} = 360$
3. (a)  ${}_{35}C_5$   
(b)  ${}_{35}P_5$
4. (a)  ${}_{10}C_6 \cdot (0.55)^6(0.45)^4$   
(b)  ${}_{10}C_9 \cdot (0.55)^9(0.45)^1$   
(c)  ${}_{10}C_9 \cdot (0.55)^9(0.45)^1 + {}_{10}C_{10} \cdot (0.55)^{10}$
5.  $10 \cdot 9 \cdot 8 \cdot 26 \cdot 25 \cdot 24 = 11232000$
6.  $\frac{1}{{}_{48}P_5} = \frac{1}{205476480}$
7. (a)  ${}_6C_4 = \frac{6 \cdot 5 \cdot 4 \cdot 3}{4 \cdot 3 \cdot 2 \cdot 1} = 15$  (b)  ${}_{12}C_5 = \frac{12 \cdot 11 \cdot 10 \cdot 9 \cdot 8}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} = 11 \cdot 9 \cdot 8$   
(c)  ${}_{54}C_4 = \frac{54 \cdot 53 \cdot 52 \cdot 51}{4 \cdot 3 \cdot 2 \cdot 1} = 27 \cdot 53 \cdot 13 \cdot 17$   
(d)  ${}_{1001}C_5 = \frac{1001 \cdot 1000 \cdot 999 \cdot 998 \cdot 997}{5 \cdot 4 \cdot 3 \cdot 2 \cdot 1} = 1001 \cdot 25 \cdot 333 \cdot 998 \cdot 997$
21. (a)  $\frac{12}{52}$  (b)  $\frac{13}{52}$  (c)  $\frac{22}{52}$  (d)  $\frac{19}{52}$  (e)  $\frac{30}{52}$
8. 0.9
9. (a) tree diagram  
(b)  $P(\text{no head}) = \frac{1}{27}$ ,  $P(\text{one head}) = \frac{2}{9}$ ,  $P(\text{two heads}) = \frac{4}{9}$ ,  $P(\text{three heads}) = \frac{8}{27}$ .  
(c) 2  
(d) Odds in favor = 7:20, Odds against = 20:7
10. (a) tree diagram  
(b)  $P(\text{same color}) = \frac{3}{7}$ ,  $P(\text{different color}) = \frac{4}{7}$   
(c)  $E = \frac{8}{7}$  (d) Odds in favor = 2:5, Odds against = 5:2
11. (a) tree diagram  
(b)  $P(\text{same color}) = \frac{25}{49}$ ,  $P(\text{different color}) = \frac{24}{49}$   
(c)  $E = \frac{56}{49}$  (d) Odds in favor = 16:33, Odds against = 33:16
12. \$2.33
13. \$15

14. 0.1

15.  $\frac{223}{343}$

16. (a)  $\frac{1}{8}$  (b)  $\frac{2}{9}$  (c) No.