Solutions HW3 (Sec 2.7)

14. $(6!)(5!)$

16. B G B G B G → # = $3 \cdot 3 \cdot 2 \cdot 2 \cdot 1 \cdot 1 = (3!)^2$
or
G B G B G B → # = $(3!)^2$
$\Rightarrow P(\text{alternate}) = \frac{2 \cdot (3!)^2}{6!} = \frac{1}{10}$

17. (a) J S . . . . . → # = 5!
J . . . . . S → # = 5!
$\Rightarrow$ # of seatings where J and S sit next to each other
$= 2 \cdot (5!) = 240$

(b) Assume J in seat 1 → 6! possible # of seatings
$\Rightarrow$ # of seating with J and S not next to each other $= 6! - 240 = 480$

25. $6 \cdot (5!4!3!) = 103680$

30. (a) $C_{10,2}(10.8\%)^2(89.2\%)^8$

(b) $C_{10,0}(10.8\%)^0(89.2\%)^{10} + C_{10,1}(10.8\%)^1(89.2\%)^9$