Solutions To The Even Number Problems

Section 1.1 and 1.2

8.(a) 12!, (b)(4!)(8!), (c)(4!)(5!)(3!)

20.(a) $\frac{8!}{3!}$=6720. (b) 6!=720 ways.

26. $\frac{14!}{(7!)(7!)}$. Generalized result when going from (a,b) to (a+m,b+n) is $\frac{(m+n)!}{(m!)(n!)}$.
28.(a) The **for** loop for i is executed 12 times , while those for j and k are executed 10-5+1=6 and 15-8+1=8 times, respectively. Consequently , following the execution of the given program segment , the value of *counter* is

$$0 + 12(1) + 6(2) + 8(3) = 48.$$

(b) Here we have three tasks -T_1, T_2 and T_3. Task T_1 takes place each time we traverse the instructions in the i loop. Similarly , tasks T_2 and T_3 takes place during each iteration of the j and k loops, respectively. The final value of the integer variable counter follows by the rule of sum.

Section 1.3

4.(a) $2^6 - 1 = 63$, (b) $\binom{6}{3}$ and (c) $\binom{6}{2} + \binom{6}{4} + \binom{6}{6} = 31$.
26.(a) $\binom{10}{2,2,2,2,2}$, (b) $\binom{12}{2,2,2,2,4}$ and (c) $\binom{12}{0,2,2,2,2,4}$.
30. The sum is the binomial expansion of $(1+2)^n = 3^n$.
32. $x = \pm 3$.

Section 1.4,Homework Due

4.(a) $\binom{31}{12}$, (b) $\binom{31+12-1}{12}$, (c) Will come up after 6^{th} feb.

16. $n = 82$. (I have explained in the discussion)