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CS 225

6.3 Permutations and Combinations

7th edition: { 6, 10, 12, 24, 26}

6) a)
$$C(5,1) = 5! / 1! 4! = 5$$

b)
$$C(5,3) = 5! / 3!2! = 10$$

c)
$$C(8,4) = 8! / 4!4! = 70$$

d)
$$C(8,8) = 8!/8!0! = 1$$

e)
$$C(8,0) = 8! / 0!8! = 1$$

10) 6-permutations total With 6 candidates.

$$P(6,6) = 6! = 720$$

b)
$$C(12,0) + C(12,3) + C(12,2) + C(12,1) = \frac{12!}{0!12!} + \frac{12!}{1!11!} + \frac{12!}{2!10!} + \frac{12!}{3!9!}$$

c)
$$2^{12}$$
 - $[C(12,0) + C(12,1) + C(12,2)] = 4096 - [1 + 12 + 66] = 4017$

There are P(10,10) ways to position women, there are 11 positions for the 6 men to be positioned. P(11,6) ways to position the men.

$$P(10,10) * P(11,6) = 10! * 11!/5! = 1,2-7,084,032,000.$$

c) since there are C(13,10) ways to choose 10 players to the field. To the possibility that at least one woman gets chosen, we need to only minus the one possibility that NO woman gets chosen. 286-1 = 285 ways