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CS-225: Discrete Structures in CS
Homework 8, Part 1

Exercise Set 9.2: Problem 32

C: A(1), L(2), GOR(3), I(4), T(5), H(6), M(7) $n = 7$

$7! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = \underline{5040}$ ANS

Exercise Set 9.2: Problem 33

C: 1 2 3 4 5 6
n = 3 Couples)

$3! = 3 \times 2 \times 1 = \underline{6}$ ANS

Exercise Set 9.2: Problem 34

$(8-1)! = 7! = 7 \times 6 \times 5 \times 4 \times 3 \times 2 \times 1 = 5040$

It can be arrangend in 5,040 ways

Exercise Set 9.2: Problem 39

D: $P(7,4) = \frac{7!}{(7-4)!} = \frac{7!}{3!} = 840$ ($n=7$, $r=4$)

A(1), L(2), GOR(3), I(4), T(5), H(6), M(7)

Exercise Set 9.5: Problem 20

A: M(1), I(2), L(3), L(4), I(5), M(6), I(7), C(8), R(9), O(10), N(11)

M = 2, L = 2, C = 1, N = 1 — 11 positions

I = 3, C = 1, O = 1

$\text{ANS} = \frac{11!}{2!3!2!1!1!1!1!} = 1{,}663{,}200$

B: 11 positions

11 - 2 (first and last) = 9

$\text{ANS} = \frac{9!}{1!3!2!1!1!1!} = 30{,}240$

C: 11 positions

11 - 2 (COR $ON coont as 1 position each) = 9

$\text{ANS} = \frac{9!}{2!3!2!1!1!} = 15{,}120$