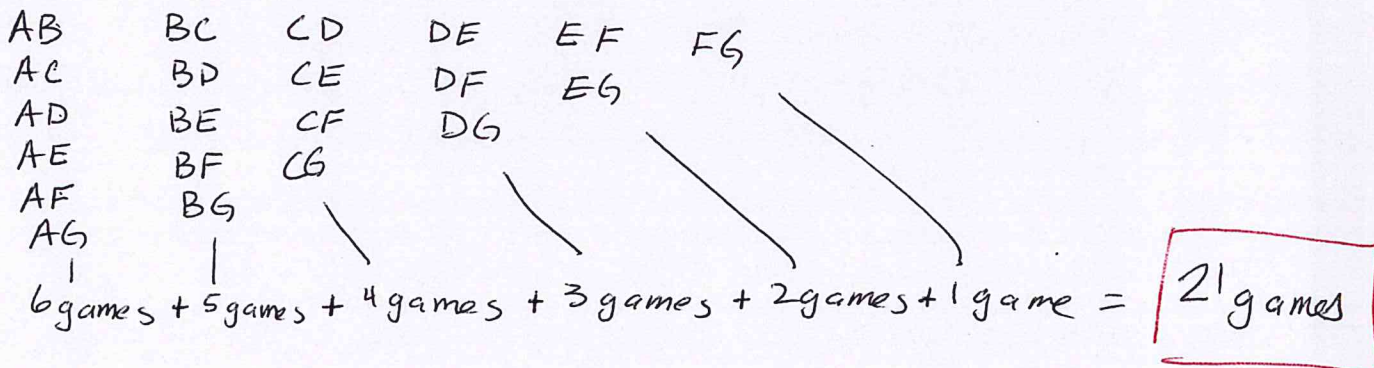1. A new recreational basketball league was formed in which each team plays one game against each other team. There are seven teams: The Anacondas, the Bears, the Cubs, the Dogs, the Eagles, the Ferrets, and the Gators. Create a systematic list to find the total number of games that will be played.

2. Amani, Bart, Chuck, and Dalia all called in to a radio show to get free tickets to a concert. Create a systematic list to find the number of all possible different orders in which their calls could have been received.

3. Roberto is shopping in a large department store with many floors. He enters the store on the middle floor from a skyway, and immediately goes to the credit department which is on that floor. After checking his credit he goes up three floors to the housewares department. Then he goes down five floors to the children's department. Then he goes up six floors to the electronics department. Finally he goes down ten floors to the main entrance which is on the first floor. How many floors does the store have?

1. A new recreational basketball league was formed in which each team plays one game against each other team. There are seven teams: The Anacondas, the Bears, the Cubs, the Dogs, the Eagles, the Ferrets, and the Gators. Create a systematic list to find the total number of games that will be played.

TEAMS: A, B, C, D, E, F, G

AB	BC	CD	DE	EF	FG
AC	BD	CE	DF	EG	
AD	BE	CF	DG		
AE	BF	CG			
AF	BG				
AG					

6 games + 5 games + 4 games + 3 games + 2 games + 1 game = **21 games**

2. Amani, Bart, Chuck, and Dalia all called in to a radio show to get free tickets to a concert. Create a systematic list to find the number of all possible different orders in which their calls could have been received.

Callers A B C D

A is 1st	B is 1st	C is 1st	D is 1st
ABCD	BACD	CABD	DABC
ABDC	BADC	CADB	DACB
ACBD	BCAD	CBAD	DBAC
ACDB	BCDA	CBDA	DBCA
ADBC	BDAC	CDAB	DCAB
ADCB	BDCA	CDBA	DCBA

6 calls + 6 calls + 6 calls + 6 calls = **24 calls**

3. Roberto is shopping in a large department store with many floors. He enters the store on the middle floor from a skyway, and immediately goes to the credit department which is on that floor. After checking his credit he goes up three floors to the housewares department. Then he goes down five floors to the children's department. Then he goes up six floors to the electronics department. Finally he goes down ten floors to the main entrance which is on the first floor. How many floors does the store have?

13 floors

ELECTRONICS +6

Housewares +3   +5   -1
+2   -1   +4   -2
+1   -2   +3   -3

middle floor   -3   +2   -4 → middle floor
-4   +1   -5   6th

children -5   -6   5th
-7   4th
-8   3rd
-9   2nd

1st floor   -10   1st

6 floors below middle floor means 6 floors above middle floor

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