

Activity 1 Permutations

1.

A B C D	B A C D	C A B D	D A B C
A B D C	B A D C	C A D B	D A C B
A C B D	B C A D	C B A D	D B A C
A C D B	B C D A	C B D A	D B C A
A D B C	B D A C	C D A B	D C A B
A D C B	B D C A	C D B A	D C B A

2.

a) $5 \times 4 \times 3 \times 2 \times 1 = 120$

b) $6 \times 5 \times 4 \times 3 \times 2 \times 1 = 720$

3.

Expression	2!	3!	4!	5!	6!	7!	1! or 0!	10!
Value	2	6	24	120	720	5040	1	3628800

4.

a) $4!$

b) $5!$

c) $6!$

d) $10!$

5.

		Number of friends			
		4	5	6	7
Tickets	2	12	20	30	42
	3	24	60	120	210
	4	24	120	360	840
	5		120	720	2520

6.

Expression	P_2^7	P_2^8	P_3^{10}	P_4^{10}	P_2^n	P_2^{10} or P_1^{90}
ClassPad	nPr(7,2)	nPr(8,2)	nPr(10,3)	nPr(10,4)	nPr(n,2)	nPr(10,2)
Value	42	56	720	5040	$\frac{n!}{(n-2)!}$	90

7.

a) 7^5

b) $P_5^7 = 2520$

8. $P_3^{26} = 15600$

9.

a) $8!$

b) P_8^{12}

c)

1	10	9	8	7	6	5	1
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i.e. 1 way for each end and then 10 choices for the next position etc.

or P_6^{10}