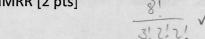
Analysis 2023/24
Hahn/Hlasek/Tantod

22.5 Date 1/3/23 period 6

No calculators. Leave answers in factorial, exponent, or "choose" form.

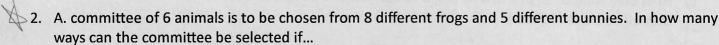
1. The 8 letters of the word REMEMBER are arranged in a line.

a) Find the number of different arrangements if there are no restrictions. As a hint: one possible arrangement is BEEEMMRR [2 pts]



b) Find the number of different arrangements which start and finish with the letter M. [2 pts]

 $M \longrightarrow M \longrightarrow G!$



a) ...there must be more frogs than bunnies on the committee? (all frogs and no bunnies is ok) [2 pts]

at least 4 frogs, P(AUB) = P(A)+P(B) (\$)(5)+(8)(5) (5)

no move than 2 bunnies (8 + 8) + (8) + (8)

b) ...the committee consists of 3 frogs and 3 bunnies, but two particular bunnies refuse to be on the

committee together? [2 pts] -(3) -3 (5) (3) (5) -(5)(3) (3) × (6) -(3))

3. Find the number of positive integers greater than 6000 and less than 7000 which are divisible by 5, provided that no digit is to be repeated. [2 pts]

6 8 5 8.7.2 = 112 V

4. If $_{n}P_{r} = 840$ and $_{n}C_{r} = 35$, then solve for r (your answer is a single number). [3 pts]

 $\frac{h!}{(n-r)!} = 840 \quad \frac{h!}{r!(n-r)!} = 35$ $\frac{840}{r!} = 35 \quad r! = \frac{848}{25} \quad r! = 24$ $r = 35 \quad r! = \frac{1}{25} \quad r! = 24$

5. My son's baseball team plays 11 games in the regular season. How many ways are there for the team to win 6 games, lose 3 and tie 2? (they only care about final standings, and not who they beat) [2pts]

WWWWWW LLL TT 613121 Mays /

Tomorrow, 3	fathers are taking their 3	daughters (each fat	her has 1 daughte	r) to the movies.	
a) They wan	t to sit in a row of 6 seats	. If each father is si	tting next to his ov	wn daughter, in how m	any
	they be seated? [2pts]				
-1		FFFUU	FRFDFD		
b) They still	want to sit in a row of 6 s	eats. How many wa	ays can they be se	ated if all the daughter	s si
together					
	FFFEDD	> LOPPLE	DUP FFF		
	400	, OPP	A Karpanananan		
	14!	·3! / 2000	0 40		
	want to sit in a row havi	ng 8 seats. With no	other restrictions	, in how many ways ca	n
_ they all b	e seated? [2pts]		empty o.	heaple	
	7 (843,2			
		1 8 8	/		
In the expan	sion of $(a-3b)^{16}$, the su		ne	nd the value of $\frac{a}{t}$.	
	r should be a number) [3			x B x K	. ,
(your unswe			16:	16 15 15 13 15 15 15 15 15 15 15 15 15 15 15 15 15	0
	(16) 05 (-3b)8 + (1)) 2 (-36) = C	8.0	1, 67, 43	11
			16:	= 13,10.9	
	(16) a8 38 b9 - 19	723969 =0	8, (8)	= 11.10	
	116 1 9	2 11h or of w	9:(1))	1	
	(8) 23,7	8 2 (9) \$ 3. 8	16! 9	t xt. q	
	0 -	2 00	8.8.	b! - 8	
	3000	b 90 = 3	7 = 6 8 inf	1.6 8	
		27 = 6/	9 = p sing	117 3	\ A / L
If all permut	ations of the letters of the	word MANGA are	arranged in the or	der as in a dictionary.	wn
is the 49 th w	ations of the letters of the ord? [3pts]	~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	. \$6		
A		T N = N = Q			
16	18 . A C				
1	18 4		ACON	(
			SO S & S = -		
	49= 24+ 45		well.		
	24+28, =24+18+		,		
	MAHNE				
		MGAAT	0		
		1			
18	(5)			1/51	
3/			4 frogs (84 5 fross (1	(i) +	
			6 from	8)(3)+	
			6413	3)(3) 1	

1-4.5