alysis H	AtPS Quiz 2 2019/20
	/ Gleason / Tantod

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1. Use mathematical induction to prove that the given formula works for all positive integers n. [7]

$$1 \cdot 3 + 2 \cdot 4 + 3 \cdot 5 + \dots + n(n+2) = n(n+1)(2n+7)/6$$

2. Use the formula
$$(n+2)!-n!=n!(n^2+3n+1)$$
 to derive a compact expression for: $0!+11(2!)+29(4!)+...+(4m^2+6m+1)[(2m)!]$ Show clear and careful work. [4]

Write without fact	orials and simplify:	$\lceil (n+1)! \rceil^2$		[3]
AND THE		$\frac{\left[\left(n+1\right)!\right]^{2}}{n!\left(n-1\right)!}$	ne se	
Simplify $\begin{pmatrix} -3 \end{pmatrix}$				
Simplify $\begin{pmatrix} -3 \\ 12 \end{pmatrix}$				
				[3]
The geometric me	20 af C 20 and 24 C	,		
the Reometric me	ean of 6, 36, and 216 is	s a whole number. Find it. Exp	plain what this numbe	r represents.
eo mean				
	Explain			[3]
 a) Find the 30th the same of the same of	erm of the Geometric	Sequence with third term 24 a	and sixth term 3. (Deci	mal form of
		- 51/5		
		= = 51/5		[3]
Consider the Infineries have a finite series.	nite Geometric Series	that corresponds to the sequen	nce described in part "a	a". Will the
) Consider the Infineries have a finite s	nite Geometric Series sum? Yes or No:	that corresponds to the sequen	nce described in part "a	
) Consider the Infineries have a finite s	nite Geometric Series sum? Yes or No:	that corresponds to the sequen	nce described in part "a	a". Will the
) Consider the Infineries have a finite s	nite Geometric Series sum? Yes or No:	that corresponds to the sequen	nce described in part "a	a". Will the
eries nave a finite s	sum? Yes or No:	Explain:		a". Will the
eries nave a finite s	sum? Yes or No:	61. Write your answer as a pro	oduct of two numbers.	a". Will the
eries nave a finite s	sum? Yes or No:	Explain:	oduct of two numbers.	a". Will the
eries nave a finite s	sum? Yes or No:	61. Write your answer as a pro	oduct of two numbers.	a". Will the
eries nave a finite s	sum? Yes or No:	61. Write your answer as a pro	oduct of two numbers.	a". Will the
eries nave a finite s	n 11+14+17++7	Explain:	oduct of two numbers.	a". Will the
eries nave a finite s	n 11+14+17++7	61. Write your answer as a pro	oduct of two numbers.	a". Will the
7. Calculate the sun	n 11+14+17++7	Explain:	oduct of two numbers.	a". Will the
eries nave a finite s	n 11+14+17++7	Explain:	oduct of two numbers.	a". Will the