

# LATEX TEMPLATE FOR GITHUB

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ABSTRACT. Your abstract here.

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## 1. INTRODUCTION

Your introduction here. Include some references [1, 2, 3]. Lorem Ipsum is simply dummy text of the printing and typesetting industry. Lorem Ipsum has been the industry's standard dummy text ever since the 1500s, when an unknown printer took a galley of type and scrambled it to make a type specimen book. It has survived not only five centuries, but also the leap into electronic typesetting, remaining essentially unchanged. It was popularised in the 1960s with the release of Letraset sheets containing Lorem Ipsum passages, and more

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recently with desktop publishing software like Aldus PageMaker including versions of Lorem Ipsum.

### Image example

The screenshot shows the Rider IDE interface. The left sidebar displays a file tree for a project named "unexpected-polynomial-identities-classical-interpolation". The tree includes subfolders like ".git", ".github", "jidea", "run", "mathematica", "oeis", "out", "scripts", and "src". Under "src", there are "sections", "Build-Latex.ps1", "Initialize-Workspace.ps1", "unexpected-polynomial-identities-classical-interpolation.bb", and "unexpected-polynomial-identities-classical-interpolation.tex". The right side of the interface shows a code editor with the file "unexpected-polynomial-identities-classical-interpolation.tex" open. The code is a LaTeX document with various packages and definitions. Below the code editor is a "Run" panel showing build logs, which indicate that the build was successful with no errors or warnings. The status bar at the bottom shows the current time as 12:22, the encoding as LF, and the file as UTF-8.

**Figure 1.** Image example (from caption).

$m/r$	0	1	2	3	4	5	6	7
0	1							
1	1	6						
2	1	0	30					
3	1	-14	0	140				
4	1	-120	0	0	630			
5	1	-1386	660	0	0	2772		
6	1	-21840	18018	0	0	0	12012	
7	1	-450054	491400	-60060	0	0	0	51480

**Table 1.** Coefficients  $\mathbf{A}_{m,r}$ . See OEIS sequences [4, 5].

$$\begin{array}{c} \left[ \begin{array}{c} a \\ b \end{array} \right]_m \\ \left[ \begin{array}{c} a \\ b \end{array} \right]_m \end{array}$$

And for any natural  $m$  we have polynomial identity

$$x^m = \sum_{k=1}^m T(m, k) x^{[k]} \quad (1)$$

where  $x^{[k]}$  denotes central factorial defined by

$$x^{[n]} = x \left( x + \frac{n}{2} - 1 \right)^{\frac{n-1}{2}}$$

where  $(n)_k^k = n(n-1)(n-2) \cdots (n-k+1)$  denotes falling factorial in Knuth's notation. In particular,

$$x^{[n]} = x \left( x + \frac{n}{2} - 1 \right) \left( x + \frac{n}{2} - 1 \right) \cdots \left( x + \frac{n}{2} - n - 1 \right) = x \prod_{k=1}^{\frac{n-1}{2}} \left( x + \frac{n}{2} - k \right) \quad (2)$$

This is an equation reference (1).

Continuing similarly, we are able to derive the formula for multifold sums of powers, which is

**Theorem 1.1** (Multifold sums of powers via Newton's series). *For non-negative integers  $r, n, m$  and an arbitrary integer  $t$*

$$\sum^r n^m = \sum_{j=0}^m \Delta^j t^m \left[ \left( \sum_{s=1}^r (-1)^{j+s-1} \binom{j+t-1}{j+s} \Sigma^{r-s} n^0 \right) + \binom{n-t+r}{j+r} \right]$$

*Proof.* By Newton's series for power and repeated applications of the segmented hockey stick identity.  $\square$

## CONCLUSIONS

Conclusions of your manuscript.

Here is an itemize list with adjusted margins

- Conclusion 1 ....

- Conclusion 2 ....
- Conclusion 3 ....

#### ACKNOWLEDGEMENTS

The author is grateful to [Full Name] for his valuable contribution [contribution] about the fact that [interesting claim].

#### REFERENCES

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