

## Math 724, Fall 2017

Notation/LaTeX Reference Sheet (last update: 8/14/17)

### Bogart's problem symbols

- Essential
- Motivational
- + Summary
- Especially interesting
- \* Difficult
- Essential for this or the next section

### LaTeX macros

```
\newcommand{\fallfac}[2]{\#1^{\underline{\#2}}}  
\newcommand{\risefac}[2]{\#1^{\overline{\#2}}}  
\newcommand{\qbin}[2]{\begin{bmatrix}\#1 \\ \#2\end{bmatrix}_q}  
\DeclareMathOperator{\Fix}{Fix}
```

### Typos/clarifications

p.100, top line: “number real number” should be “real number”

p.104, problem 228:  $A_3$  should be  $C$ .

p.105, bottom paragraph: “If is also” should be “It is also”

p.107, problem 237: For the purpose of the problem, assume that every couple includes one man and one woman. No political opinion is intended thereby.

## Notation list

Symbol	Meaning	LaTeX	Reference
$[n]$	The set $\{1, 2, \dots, n\}$		
$N^M$	Functions $m \rightarrow N$		p.7
$n^{\underline{k}}$	Falling factorial	<code>\fallfac{n}{k}</code>	p.9
$\binom{n}{k}$	Binomial coefficient	<code>\binom{n}{k}</code>	p.13
$\chi_S$	Characteristic function		p.16
$C_n$	Catalan number		p.24
$K_n$	Complete graph on $n$ vertices		p.29
$R(m, n)$	Ramsey number		p.29
$G - e$	deletion		p.51
$G/e$	contraction		p.51
$n^{\overline{k}}$	Rising factorial	<code>\risefac{n}{k}</code>	p.62
$S(k, n)$	Stirling number of the second kind		p.65
$B(k)$	Bell number		p.66
$\binom{k}{j_1, \dots, j_n}$	Multinomial coefficient	<code>\binom{k}{j_1, \dots, j_n}</code>	p.67
$P(k)$	Number of partitions of $k$		p.70
$P(k, n)$	No. of part'ns of $k$ into $n$ parts		p.70
$Q(k, n)$	No. of part'ns of $k$ into $n$ distinct parts		p.76
Fruit symbols		I have no idea	p.81
$\begin{bmatrix} n \\ k \end{bmatrix}_q$	$q$ -binomial coefficient	<code>\qbin{n}{k}</code>	p.92
$S_n$	Symmetric group on $n$ letters		p.117
$D_n$	Dihedral group of order $2n$		p.119
$C_n$	Cyclic group of order $n$		p.125
$Gx$	Orbit of a group action		p.131
$Gx_{\text{multi}}$	Multiorbit of a group action	<code>Gx_{\text{\texttrm{multi}}}</code>	p.132
$\text{Fix}(x)$	Subgroup fixing an element $x$	<code>\Fix(x)</code>	p.133