Test Document

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1 Symbols

1.1 Misc

$$\varepsilon, n^{-1}, \mathrm{LHS}, \mathrm{RHS}, \theta^\circ$$

1.2 Sets

$$\mathbb{N}, \mathbb{Z}, \mathbb{Q}, \mathbb{R}, \mathbb{C}$$

$$\mathbb{P}, \mathbb{F}, \mathbb{Q}_\times, \#\mathbb{N}, \varnothing$$

1.3 Functions

$$\mathrm{im}, \ker$$

$$\mathrm{sign}, \mathrm{Id}, \mathbf{1}$$

1.3.1 Trigonometric and Hyperbolic Functions

$$\sin, \cos, \tan, \cot, \sec, \csc$$

$$\arcsin, \arccos, \arctan, \operatorname{arccot}, \operatorname{arcsec}, \operatorname{arccsc}$$

$$\sinh, \cosh, \tanh, \coth, \operatorname{sech}, \operatorname{csch}$$

$$\operatorname{arsinh}, \operatorname{arcosh}, \operatorname{artanh}, \operatorname{arcoth}, \operatorname{arsech}, \operatorname{arcsch}$$

1.3.2 UK Notation

$$\operatorname{cosec}, \operatorname{cosech}, \operatorname{arccosec}, \operatorname{arcosech}$$

1.3.3 Exponential and Logarithmic Functions

$$\exp, \log, \ln, \lg, \mathrm{lb}$$

1.4 Number Theory

$$\varphi, \gcd, \operatorname{lcm}, \max, \min$$

$$7 \bmod 2, 2 \mid 6, 2 \nmid 7$$

1.5 Group Theory

$$\mathrm{Isom}, \mathrm{Sym}, \mathrm{Fix}, \mathrm{Orb}, \mathrm{Stab}$$

$$\curvearrowright, \leq, \lhd$$

1.6 Analysis

$$\mathrm{LUB}, \text{supremum}, \sup, \mathrm{GLB}, \text{infimum}, \inf$$

$$\limsup, \liminf, \lim$$

1.6.1 Infinity

$$\infty, +\infty, -\infty$$

1.6.2 Differentiation

$$\mathrm{d}x, \frac{\mathrm{d}y}{\mathrm{d}x}, \frac{\mathrm{d}}{\mathrm{d}x}$$
$$\mathrm{d}^2x, \frac{\mathrm{d}^2y}{\mathrm{d}x^2}, \frac{\mathrm{d}^2}{\mathrm{d}x^2}$$
$$\partial x, \frac{\partial y}{\partial x}, \frac{\partial}{\partial x}$$
$$\partial^2 x, \frac{\partial^2 y}{\partial x^2}, \frac{\partial^2}{\partial x^2}$$

1.7 Probability

$$\mathbb{P}, \mathbb{E}, \mathrm{Var}, \mathrm{Cov}, \mathrm{Corr}$$

1.7.1 Distribution

$$\mathrm{B}, \mathrm{Po}, \mathrm{N}, \mathrm{Exp}, \mathrm{Geo}, \mathrm{U}$$

1.8 Complex Numbers

$$\arg, \mathrm{Im}, \mathrm{Re}, \overline{z}$$

1.9 Linear Algebra

$$\det, \mathrm{tr}, \mathrm{adj}, \mathrm{null}, \mathrm{rank}, \mathrm{span}$$

1.9.1 Matrices

$$\mathbf{M}, \mathbf{I}, \mathbf{O}, \mathbf{M}^\intercal, \mathbf{M}^\dagger$$

1.9.2 Matrix Groups

$$\mathrm{GL}, \mathrm{SL}, \mathrm{O}, \mathrm{SO}, \mathrm{U}, \mathrm{SU}, \mathbb{P}\mathrm{GL}, \mathbb{P}\mathrm{SL}$$

1.9.3 Basis Vectors

$$\hat{\mathbf{i}}, \hat{\mathbf{j}}, \hat{\mathbf{k}}$$

1.10 Paired Delimiters

$$\left(\frac{a}{b}\right), \left[\frac{a}{b}\right], \left\{\frac{a}{b}\right\}$$
$$\left\lceil\frac{a}{b}\right\rceil, \left\lfloor\frac{a}{b}\right\rfloor, \left|\frac{a}{b}\right|, \left\langle\frac{a}{b}\right\rangle$$
$$\left\{x \in \mathbb{R} \,\middle|\, x = \frac{a}{b}\right\}$$

2 Theorems

Definition 2.1 (*Some Definition*)

This is a definition.

Theorem 2.2 (*Very Important Theorem*)

This is a very important theorem.

Proof. Some proof. □

Examples 2.1

Some examples of the theorem.

Notation. The previous theorem allows us to abuse notation.

Corollary 2.3 (*Obvious Corollary*)

A corollary.

Example 2.2 (*An example*)

An example.

Lemma 2.4 (*Some Lemma*)

Some lemma.

Claim 2.5 (*Some Claim*)

Some claim.

Remark. This is a remark on the claim.

Proposition 2.6 (*Some Proposition*)

A proposition.

Remarks. Some remarks on this proposition.