

# AMS JOURNAL SAMPLE

AUTHOR ONE AND AUTHOR TWO

*This paper is dedicated to our advisors.*

ABSTRACT. This paper is a sample prepared to illustrate the use of the American Mathematical Society's  $\text{\LaTeX}$  document class `amsart` and publication-specific variants of that class for AMS- $\text{\LaTeX}$  version 2.

## THIS IS AN UNNUMBERED FIRST-LEVEL SECTION HEAD

This is an example of an unnumbered first-level heading.

## THIS IS A SPECIAL SECTION HEAD

This is an example of a special section head<sup>1</sup>.

### 1. THIS IS A NUMBERED FIRST-LEVEL SECTION HEAD

This is an example of a numbered first-level heading.

**1.1. This is a numbered second-level section head.** This is an example of a numbered second-level heading.

**This is an unnumbered second-level section head.** This is an example of an unnumbered second-level heading.

**1.1.1. *This is a numbered third-level section head.*** This is an example of a numbered third-level heading.

*This is an unnumbered third-level section head.* This is an example of an unnumbered third-level heading.

**Lemma 1.1.** *Let  $f, g \in A(X)$  and let  $E, F$  be cozero sets in  $X$ .*

- (1) *If  $f$  is  $E$ -regular and  $F \subseteq E$ , then  $f$  is  $F$ -regular.*
- (2) *If  $f$  is  $E$ -regular and  $F$ -regular, then  $f$  is  $E \cup F$ -regular.*
- (3) *If  $f(x) \geq c > 0$  for all  $x \in E$ , then  $f$  is  $E$ -regular.*

The following is an example of a proof.

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<sup>1</sup>Here is an example of a footnote. Notice that this footnote text is running on so that it can stand as an example of how a footnote with separate paragraphs should be written.

And here is the beginning of the second paragraph.

*Proof.* Set  $j(\nu) = \max(I \setminus a(\nu)) - 1$ . Then we have

$$\sum_{i \notin a(\nu)} t_i \sim t_{j(\nu)+1} = \prod_{j=0}^{j(\nu)} (t_{j+1}/t_j).$$

Hence we have

$$(1.1) \quad \prod_{\nu} \left( \sum_{i \notin a(\nu)} t_i \right)^{|a(\nu-1)| - |a(\nu)|} \sim \prod_{\nu} \prod_{j=0}^{j(\nu)} (t_{j+1}/t_j)^{|a(\nu-1)| - |a(\nu)|} \\ = \prod_{j \geq 0} (t_{j+1}/t_j)^{\sum_{j(\nu) \geq j} (|a(\nu-1)| - |a(\nu)|)}.$$

By definition, we have  $a(\nu(j)) \supset c(j)$ . Hence,  $|c(j)| = n - j$  implies (5.4). If  $c(j) \notin a$ ,  $a(\nu(j))c(j)$  and hence we have (5.5).  $\square$

This is an example of an ‘extract’. The magnetization  $M_0$  of the Ising model is related to the local state probability  $P(a) : M_0 = P(1) - P(-1)$ . The equivalences are shown in Table 1.

TABLE 1

	$-\infty$	$+\infty$
$f_+(x, k)$	$e^{\sqrt{-1}kx} + s_{12}(k)e^{-\sqrt{-1}kx}$	$s_{11}(k)e^{\sqrt{-1}kx}$
$f_-(x, k)$	$s_{22}(k)e^{-\sqrt{-1}kx}$	$e^{-\sqrt{-1}kx} + s_{21}(k)e^{\sqrt{-1}kx}$

**Definition 1.2.** This is an example of a ‘definition’ element. For  $f \in A(X)$ , we define

$$(1.2) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

*Remark 1.3.* This is an example of a ‘remark’ element. For  $f \in A(X)$ , we define

$$(1.3) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

**Example 1.4.** This is an example of an ‘example’ element. For  $f \in A(X)$ , we define

$$(1.4) \quad \mathcal{Z}(f) = \{E \in Z[X] : f \text{ is } E^c\text{-regular}\}.$$

**Exercise 1.5.** This is an example of the `xca` environment. This environment is used for exercises which occur within a section.

The following is an example of a numbered list.

- (1) First item. In the case where in  $G$  there is a sequence of subgroups

$$G = G_0, G_1, G_2, \dots, G_k = e$$

such that each is an invariant subgroup of  $G_i$ .

- (2) Second item. Its action on an arbitrary element  $X = \lambda^\alpha X_\alpha$  has the form

$$(1.5) \quad [e^\alpha X_\alpha, X] = e^\alpha \lambda^\beta [X_\alpha X_\beta] = e^\alpha c_{\alpha\beta}^\gamma \lambda^\beta X_\gamma,$$

- (a) First subitem.

$$-2\psi_2(e) = c_{\alpha\gamma}^\delta c_{\beta\delta}^\gamma e^\alpha e^\beta.$$



FIGURE 1. This is an example of a figure caption with text.



FIGURE 2

(b) Second subitem.

(i) First subsubitem. In the case where in  $G$  there is a sequence of subgroups

$$G = G_0, G_1, G_2, \dots, G_k = e$$

such that each subgroup  $G_{i+1}$  is an invariant subgroup of  $G_i$  and each quotient group  $G_{i+1}/G_i$  is abelian, the group  $G$  is called *solvable*.

(ii) Second subsubitem.

(c) Third subitem.

(3) Third item.

Here is an example of a cite. See [1].

**Theorem 1.6.** *This is an example of a theorem.*

**Theorem 1.7** (Marcus Theorem). *This is an example of a theorem with a parenthetical note in the heading.*

## 2. SOME MORE LIST TYPES

This is an example of a bulleted list.

- $\mathcal{J}_g$  of dimension  $3g - 3$ ;
- $\mathcal{E}_g^2 = \{\text{Pryms of double covers of } C = \square \text{ with normalization of } C \text{ hyperelliptic of genus } g - 1\}$  of dimension  $2g$ ;
- $\mathcal{E}_{1,g-1}^2 = \{\text{Pryms of double covers of } C = \square_{P_1}^H \text{ with } H \text{ hyperelliptic of genus } g - 2\}$  of dimension  $2g - 1$ ;

- $\mathcal{P}_{t,g-t}^2$  for  $2 \leq t \leq g/2 = \{\text{Pryms of double covers of } C = \square_{C''}^{C'} \text{ with } g(C') = t - 1 \text{ and } g(C'') = g - t - 1\}$  of dimension  $3g - 4$ .

This is an example of a ‘description’ list.

**Zero case:**  $\rho(\Phi) = \{0\}$ .

**Rational case:**  $\rho(\Phi) \neq \{0\}$  and  $\rho(\Phi)$  is contained in a line through 0 with rational slope.

**Irrational case:**  $\rho(\Phi) \neq \{0\}$  and  $\rho(\Phi)$  is contained in a line through 0 with irrational slope.

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