

1. The problem statement goes here.

*Proof.* This is the [solution](#).

- (a) This
- (b) is an
- (iii) enumeration
- (4) environment.

This is centered text.

To *display centered math text, try*<sup>1</sup>

$$(\forall x)(\exists y)(x = y).$$

Some useful symbols and expressions:

$$\in, \{X, Y\}, \subseteq, \subsetneq, \supseteq, X \cup Y, X \cap Y, \mathcal{P}(X), \forall, \exists, \wedge, \vee, \neg, \rightarrow, \leftrightarrow, \vdash, \models, \alpha, \beta, 2^{\aleph_0}, \binom{n}{k} \stackrel{\text{def}}{=} \frac{n!}{k!(n-k)!}$$

If you want to display a line and “tag” it with a symbol, try this:

$$0 \rightarrow M' \xrightarrow{\alpha} M \xrightarrow{\beta} M'' \rightarrow 0. \quad (\ddagger)$$

Later, to refer to this line, write “By  $(\ddagger)$ , we deduce ...”. □

This is one way to write a system of linear equations:

$$\begin{aligned} x+2y+3z &= 1 \\ x- y+ z &= \frac{5}{2} \\ 3x-2y+ z &= 5 \end{aligned}$$

Here is the same system written in matrix form:

$$\begin{bmatrix} 1 & 2 & 3 \\ 1 & -1 & 1 \\ 3 & 2 & 1 \end{bmatrix} \begin{bmatrix} x \\ y \\ z \end{bmatrix} = \begin{bmatrix} 1 \\ \frac{5}{2} \\ 5 \end{bmatrix} \quad \text{or} \quad \begin{pmatrix} 1 & 2 & 3 \\ 1 & -1 & 1 \\ 3 & 2 & 1 \end{pmatrix} \begin{pmatrix} x \\ y \\ z \end{pmatrix} = \begin{pmatrix} 1 \\ \frac{5}{2} \\ 5 \end{pmatrix}$$

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<sup>1</sup>These fonts, in order, are roman, *slant*, **teletype**, **bold**, *italic*, **bold italic**