



## INFORMATION DOCUMENT – UPDATE OF THE REFERENCE DOCUMENT ENTITLED *GRAPHS, NOTATION AND SYMBOLS USED IN SECONDARY SCHOOL MATHEMATICS*

This document summarizes the additions and changes made in updating the reference document entitled *Graphs, Notation and Symbols Used in Secondary School Mathematics*. The updated English version will be entitled *Notation, Symbols and Representations Used in Mathematics*. The main objective of the update is to bring the reference document into line with the Québec Education Program, equation editors used in computer software, and the graphical representations, notation and symbols used in the mathematics community at every level of education.

For more information on the choices made, we recommend that you consult the new version of the reference document in its entirety as well as the video recording of the presentation of the updated document.

### NEW SUBDIVISIONS:

- The **table of contents** is organized by branch of mathematics. Some symbols and notation are used in several different branches.
- A **legend** specifies the nature of the mathematical elements represented by different types of boxes.
- An **appendix** shows examples of notation used in the **study of functions**.
- An **appendix** indicates the abbreviations for **units of measure**.

### ADDITIONS OR ADJUSTMENTS:

#### Language of sets and logical connectors

- $\mathbb{N}, \mathbb{Z}, \mathbb{Q}, \mathbb{R}$ : The font for all the number sets has been changed.
- $\mathbb{R} \setminus \mathbb{Q}$ : The notation for the **set of irrational numbers** has been changed.

#### Arithmetic and algebra

- $\log_{\square}(\square)$ ,  $\log(\square)$  and  $\ln(\square)$ : In **logarithmic notation**, the argument is now in parentheses.
- $\pi$  and  $e$ : The symbols for the **number Pi** and **Euler's number** have been added.
- $\square \frac{\square}{\square}$ : The notation for a **mixed number** has been added.
- $\square\%$ : The **percentage** sign has been added.

#### Relations and functions

- $\text{dom}(\blacksquare)$  and  $\text{ran}(\blacksquare)$ : The name of the function for the domain and range of a function is now in parentheses.
- $\left\{ \begin{array}{l} \square \\ \square \end{array} \right.$ : The notation for a **system of equations** has been added.

## Probability

- $\square^c$  and  $E(\square)$ : The notation for a **complementary event** and **mathematical expectation** has been added.
- $P(\square|\square)$ : The notation for **conditional probability** has been changed.

## Statistics

- $n$ ,  $r$ ,  $R$  and  $IQR$ : The symbols for **sample size** and **correlation coefficient** have been added, and the notation for the **range of a distribution** and the **interquartile range** has been added.

## Geometry and analytic geometry

- $\parallel$ : The symbol for parallelism has been changed.
- **Axis of symmetry of a figure**: An example of a representation has been added.
- $\square^\circ$  and  $\square \text{ rad}$ : The symbols for the unit of measure of an angle **in degrees** and **in radians** have been added.
- $\sin(\square)$ ,  $\cos(\square)$ ,  $\tan(\square)$ ,  $\sec(\square)$ ,  $\text{cosec}(\square)$ , and  $\cotan(\square)$ : The numerical value or the variable is now in parentheses.
- **Geometric transformations**: There are minor changes in the representations.
- $R$ : The notation for **reflection** has been added.
- $\vec{\square}_{\square}$ : The notation for the **orthogonal projection** of a vector onto another vector has been added.
- $\text{dist}(\square, \square)$ : The notation for the **distance between two points** has been changed.
- $(x, y) \mapsto (\square, \square)$ : The notation for a **geometric transformation rule** and the representation of a **half-plane** have been added.

## Matrices

- The notation and symbols related to the concepts in this section have been added.

## Graphs

- The notation and symbols related to the concepts in this section have been added.

## Financial mathematics

- The notation and symbols related to the concepts in this section have been added.

For more information, see the document *Notation, Symbols and Representations Used in Mathematics* as well as the video recording of the presentation of the updated document on the website of the Ministère de l'Éducation et de l'Enseignement supérieur, under Pedagogical and Instructional Ressources on the secondary school mathematics curriculum page.

<http://www.education.gouv.qc.ca/en/teachers/quebec-education-program/secondary/mathematics-science-and-technology/mathematics/>.