

STAAR MASTER[®]

Student Practice Book

Sample Booklet

Grade 4

Mathematics, Spanish Version



Lori Mammen
Editorial Director

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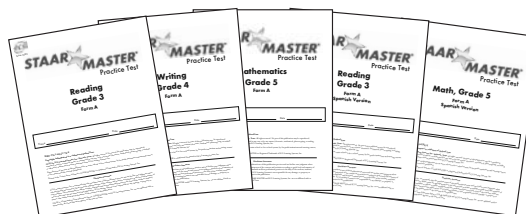
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Selected pages from
STAAR MASTER®
Student Practice Book
Mathematics, Grade 4
Spanish Version

Translated from English to Spanish by Dr. Francisco J. Perea

for the State of Texas Assessments
of Academic Readiness

Teacher Guide



Lori Mammen
Editorial Director

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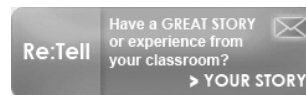


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What’s Inside the Student Practice Book?

The *STAAR MASTER® Student Practice Book* provides practice and review material for the Grade 4 Mathematics portion of the State of Texas Assessments of Academic Readiness (STAAR™).

- The practice items reflect the kinds of problems students might encounter on the actual STAAR assessment.
- The practice items cover a broad range of topics and ideas of interest to fourth-grade students.
- The practice items focus on the 2010 STAAR-eligible Mathematics Texas Essential Knowledge and Skills (Texas Education Agency, 2010b) standards.
- Each exercise is labeled for easy identification of the TEKS-based reporting category, standard, and expectation addressed in the practice items.
- Several exercises address the same standard/expectation, providing repeated practice for students in a variety of contexts.
- Selected problems are “griddable items” (see Figure 2), which reflects the format used randomly throughout the actual STAAR assessment.

Items in the *STAAR MASTER Student Practice Book* address the following mathematical concepts:

- Numbers, operations, and quantitative reasoning
- Patterns, relationships, and algebraic reasoning
- Geometry and spatial reasoning
- Measurement
- Probability and statistics
- Underlying processes and mathematical tools (not a separate reporting category)

Exercise Skills Tags

Each exercise is labeled with a “skills tag” (see Figure 1, below) for easy identification of the TEKS-based reporting category, standard, and expectation addressed in the problems.

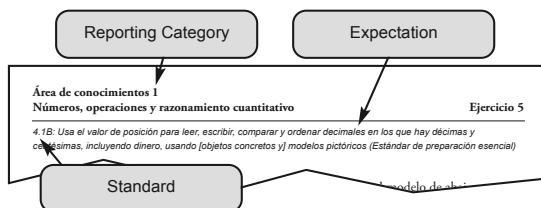


Figure 1: Exercise Skills Tag

Griddable Items

In addition to multiple-choice items, STAAR Mathematics assessments will also use open-ended questions known as “griddable items” (Texas Education Agency, 2010d). This type of assessment question allows students to reach the answer without the influence of given answer choices. The fourth-grade STAAR Mathematics assessment will likely include three griddable items. The answer grid will have four columns, with one column designated for a fixed decimal point (see Figure 2, below). Correct answers are positive numbers that range from 0 to 999. To indicate their answer, students must appropriately enter the number in the boxes and then fill in the corresponding bubbles. Students will not grid the units (e.g., ft). It is acceptable to grid extra zeroes that do not affect the value of the correct answer.

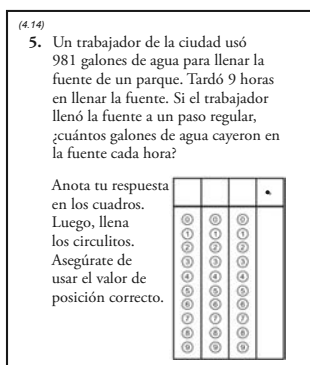


Figure 2: Griddable Item for Fourth-Grade Mathematics

This Teacher Guide includes—

- an overview of the Student Practice Book and key characteristics of the STAAR program
- descriptions of *STAAR MASTER* complexity levels
- strategies for test preparation and mathematics instruction
- a master list of STAAR-eligible standards and expectations addressed in the Mathematics TEKS
- a complete answer key (with corresponding complexity levels for the practice items)

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Readiness vs. Supporting Standards

The eligible, or tested, TEKS are divided into “readiness standards” and “supporting standards,” with greater emphasis on the former. Readiness standards address broader, deeper ideas and are deemed more critical for students to know. Supporting standards address more narrowly defined ideas and will still be assessed, although not emphasized. The STAAR MASTER® Student Practice Book mirrors this balance of readiness and supporting standards to provide meaningful, authentic student practice for the STAAR™ assessment.

Underlying Processes and Mathematical Tools

In the STAAR program, underlying processes and mathematical tools are not tested in isolation under a separate reporting category. These critical skills, which were once identified under TAKS Objective 6, are now incorporated into at least 75% of the items from eligible TEKS and are reported along with those content standards (Texas Education Agency, 2010c). Similarly, in the STAAR MASTER Student Practice Book, students are asked to demonstrate processes and tools used in problem solving within the context of practice items for other standards. When one of these skills is incorporated into a practice item, the standard and expectation are identified above the practice item (see Figure 3, below).

(4.16)

3. Fijate en el patrón de abajo, y elige la oración que lo describe.

26 260 2,600 26,000 260,000

A Añadir 10 a cada número para obtener el siguiente número de la secuencia.

B Añadir 100 a cada número para obtener el siguiente número de la secuencia.

C Multiplicar cada número por 10 para obtener el siguiente número de la secuencia.

D Multiplicar cada número por 100 para obtener el siguiente número de la secuencia.

(4.16) Underlying processes and mathematical tools. The student uses logical reasoning.

Figure 3: Practice Item Testing Underlying Processes and Mathematical Tools

Increased Rigor

The STAAR program is described as “significantly more rigorous” (Texas Education Agency, 2010a) than the Texas Assessment of Knowledge and Skills (TAKS). But what does *rigor* mean in assessment? For the STAAR program, it means the cognitive complexity of items will increase to assess skills at a greater depth.

Also, the test will include more griddable items, allowing students to arrive at answers independently through open-ended response. The STAAR MASTER Student Practice Book provides items written at varying levels of complexity to accommodate this increase in rigor. (Refer to the “Depth of Knowledge” section on this page and Box 1 on page 5 for more information about the levels of complexity in practice items.)

Alignment

According to the mandate of No Child Left Behind (2001), states are required to develop assessments that tightly align to their content standards. To ensure that this requirement is met, states and districts often conduct alignment studies. In such a study, an assessment is compared to the state’s content standards. If an assessment is rigorous, the study will not yield large disparities between the cognitive demands of the expectations and those of the assessment.

Depth of Knowledge

Norman Webb’s (2002a) “depth-of-knowledge” model is currently one of the most influential alignment models in the field of education. “Depth of knowledge” describes the degree of complexity of knowledge a curricular item requires. Webb identifies four levels of depth of knowledge: recall (Level 1), skill or concept (Level 2), strategic thinking (Level 3), and extended thinking (Level 4). Distinct cognitive demands occur during each activity, or thinking process, level. The items in the STAAR MASTER Student Practice Book were aligned to the TEKS using a modified version of the “depth-of-knowledge” model (see Box 1, “Descriptions of STAAR MASTER® Complexity Levels,” page 5). During the alignment process, the complexity level of each item (designated “Low,” “Moderate,” or “High”) was determined. The level of each practice item can be found in the Answer Key.

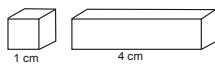
Descriptions of STAAR MASTER® Complexity Levels

The following descriptions provide an overview of the three complexity levels used to align the STAAR MASTER® Student Practice Book items to the eligible Mathematics TEKS. Each explanation details the kinds of activities that occur within each level. However, they do not represent all of the possible thought processes for each level.

Low Complexity (L)

Low-complexity items align with the TEKS at Level 1 of the Webb (2002a) model. Items of low complexity involve recall and reproduction. Activities and problems at this level require routine, single-step methods. An item may ask students to recognize or restate a fact, definition, or term. For example, students may need to identify attributes of a geometric figure. Items of this complexity may require students to follow a basic procedure with clearly defined steps. At this cognitive level, students may need to apply a formula or perform a simple algorithm. Some major concepts represented at this level include arithmetic facts, perimeter, and converting units of measure. A low-complexity item may ask students to identify, recognize, use, or measure information and concepts.

- (4.15)
1. Un cubo para juego mide 1 centímetro de anchura. Más o menos, ¿cuántos cubos para juego cabrían dentro de una caja que mide 4 centímetros de anchura?



- A 4
- B 8
- C 40
- D 64

Low Complexity

Moderate Complexity (M)

Moderate-complexity items align with the TEKS at Level 2 of the Webb model. Items of moderate complexity involve both comprehension and the subsequent processing of information. Activities at this level demand more than one step in the reasoning process. Students are asked to determine how to best solve the problem. An item may ask students to generate a table of paired numbers based on a real-life situation. Items may involve using a model to solve a problem. At this cognitive level, students will need to visualize for tasks such as extending patterns and determining nonexamples. Items may involve interpreting information from a simple graph, table, or diagram. Some major concepts represented at this level include classifying geometric figures, determining probability, and using strategies to estimate. Items of this complexity may ask students to classify, organize, observe,

collect and display data, or compare data. Some items also require students to apply low-complexity skills and concepts.

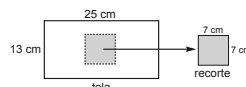
- (4.14)
2. Jeff está envolviendo 6 regalos. Necesita 8 pulgadas de listón para cada regalo. ¿Qué tantos pies de listón necesita Jeff en total?
- A 48 pies
 - B 14 pies
 - C 4 pies
 - D 2 pies

Moderate Complexity

High Complexity (H)

High-complexity items align with the TEKS at Level 3 and/or Level 4 of the Webb model*. Items of high complexity require students to use strategic, multi-step thinking; develop a deeper understanding of the information; and extend thinking. The problems at this level are non-routine and more abstract. Students are asked to demonstrate more flexible thinking, apply prior knowledge, make and test conjectures, and support their responses. High-complexity items may require students to make generalizations from patterns. Items may involve interpreting information from a complex graph, table, or diagram. At this cognitive level, students will need to justify the reasonableness of a solution process when more than one solution exists. Students will use concepts to solve and explain problems, such as how changes in dimensions affect the volume of a figure. A high complexity item may ask students to plan, reason, explain, compare, differentiate, draw conclusions, cite evidence, analyze, synthesize, apply, or prove. Some items also require students to apply low- and/or moderate-complexity skills and concepts.

- (4.14; 4.15)
3. Scott recorta un patrón para un proyecto de costura. Abajo se muestra la tela cortada.



¿Cuál es el área de la tela restante?

- A 376 centímetros cuadrados
- B 325 centímetros cuadrados
- C 276 centímetros cuadrados
- D 49 centímetros cuadrados

High Complexity

*Note: Although state standards may include expectations that require extended thinking, many large-scale assessment activities are not classified as Level 4. Performance and open-ended assessment may require activities at Level 4.

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Box 1: Descriptions of STAAR MASTER® Complexity Levels

How to Use This Book

Effective Test Preparation

What is the most effective way to prepare students for any mathematics competency test? Experienced educators know that the best test preparation includes three critical components—

- a strong curriculum that is aligned with the content and skills to be assessed
- effective, relevant, and varied instructional methods that allow students to learn content and skills in many different ways
- targeted practice that familiarizes students with the specific content and format of the test

Obviously, a strong curriculum and effective, relevant, and varied instructional methods provide the foundation for all appropriate test preparation. Contrary to what some might believe, merely “teaching the test” performs a great disservice to students. Students must acquire knowledge, practice skills, and have specific educational experiences that can never be included on tests limited by time and in scope. For this reason, resources like the *STAAR MASTER® Student Practice Book* should never become the heart of the curriculum or replace strong instructional methods.

Targeted Practice

The *STAAR MASTER Student Practice Book* does, however, address the final element of effective test preparation (targeted test practice). This book familiarizes students with—

- the specific content of Texas’ competency test
- the general format of competency tests

When students become familiar with both the content and the format of a test, they know what to expect on the actual test. This, in turn, improves their chances for success.

Using STAAR MASTER® Products

Used as part of the regular curriculum, the *STAAR MASTER Student Practice Book* allows teachers to—

- pretest skills students need for the actual test
- determine students’ areas of strength and/or weakness
- provide meaningful test-taking practice for students
- ease students’ test anxiety
- communicate test expectations and content to parents

Other Suggestions for Instruction

The *STAAR MASTER Student Practice Book* can serve as a springboard for other effective instructional strategies that help with test preparation.

Group Work

Teachers and students can work through selected practice exercises together, noting the kinds of problems and range of problem-solving techniques. They should discuss common errors for each kind of question and strategies for avoiding these errors.

Formulating Answers

Teachers may encourage students to use scratch work to formulate their own answers on paper rather than simply using mental math or guessing based on the given answer choices. After solving a problem on their own, students can read the given answer choices and determine which one, if any, matches the answer they have recorded. If they cannot find their solution among the given answer choices, they can refer to their scratch work and determine their error.

Developing Test Problems

Teachers may create additional problems that cover skills in a different way than those provided in the exercises. Teachers and students can also select “test-type” problems from other assigned math exercises.

Developing Fundamental Understanding

Teachers can promote the recognition of mathematics in everyday life by developing problems relevant to students’ daily experiences in the classroom and at home. Working through problems that relate directly to students’ experiences fosters understanding of underlying processes and mathematical tools.

Answer Key

Note: Complexity levels appear in parentheses. L = Low, M = Moderate, H = High

Área de conocimientos 1

Ejercicio 1

1. D (M) 2. B (L) 3. A (M) 4. B (M)

Ejercicio 2

1. B (M) 2. D (M) 3. D (M) 4. D (L)

Ejercicio 3

1. C (L) 2. C (M) 3. A (M) 4. D (M)

Ejercicio 4

1. C (L) 2. B (M) 3. C (M)

Ejercicio 5

1. A (M) 2. C (M) 3. A (M) 4. D (M)

Ejercicio 6

1. C (M) 2. A (M) 3. B (L) 4. A (M)

Ejercicio 20

1. D (M) 2. B (M) 3. C (M) 4. B (M)

Ejercicio 21

1. C (M) 2. A (M) 3. C (M)

Ejercicio 22

1. C (M) 2. C (M) 3. B (M) 4. A (M)

Ejercicio 23

1. C (M) 2. B (M) 3. A (M) 4. D (M)

Ejercicio 24

1. B (M) 2. D (M) 3. C (M) 4. C (M)

Ejercicio 25

1. C (M) 2. D (M) 3. C (M)

Ejercicio 26

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*All Web sites listed were active at time of publication.

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Área de conocimientos 1
Números, operaciones y razonamiento cuantitativo

Ejercicio 31

4.4D: Usa la multiplicación para resolver problemas (no más de dos dígitos por dos dígitos sin tecnología)
 (Estándar de preparación esencial)

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(4.14)

- El Sr. Alexander está comprando boletos para una función con su familia. Los costos de los boletos se muestran en la tabla de abajo.

Boletos para la función

Función	Costo por boleto
<i>Peter Pan</i>	\$29
<i>Snow White</i>	\$32
<i>Cinderella</i>	\$36

¿Cuánto costarán los boletos, si el Sr. Alexander compra 7 boletos para asistir a *Peter Pan*?

- A \$36
- B \$143
- C \$203
- D \$1,463

(4.14)

- El lunes, 3 estudiantes usaron la computadora de la biblioteca en la mañana y 4 estudiantes usaron la computadora de la biblioteca en la tarde. Cada estudiante usó la computadora durante 25 minutos. ¿Cuál fue el número total de minutos que los estudiantes usaron la computadora de la biblioteca?

- A 75 minutos
- B 100 minutos
- C 145 minutos
- D 175 minutos

(4.14)

- Un restorán puede servir a 48 personas en una hora. Si el restorán está abierto 12 horas cada día, ¿cuál es el máximo número de personas que puede servir?

- A 144
- B 566
- C 576
- D 586

(4.14)

- Una fábrica embarca 52 cartones de juguetes a las tiendas cada día. ¿Cuántos cartones embarcará la fábrica en 24 días?

- A 1,258
- B 1,248
- C 312
- D 76

(4.14)

- Mónica usa 36 pulgadas de listón para hacer 1 moño. ¿Cuántas pulgadas de listón usará para hacer 16 moños?

Anota tu respuesta en los cuadros. Luego, llena los circulitos. Asegúrate de usar el valor de posición correcto.

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Área de conocimientos 2
Patrones, relaciones y razonamiento algebraico

Ejercicio 10

4.6B: Usar patrones para multiplicar 10 y 100 (Estándar de apoyo)

(4.16)

1. ¿Qué par de números es el que mejor completa la tabla de abajo?

X	Y
3,024	302,400
1,500	150,000
2,310	231,000

- A

5,120	51,200
-------	--------
- B

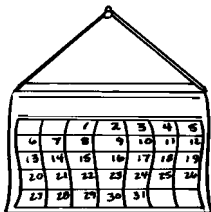
6,020	620,000
-------	---------
- C

1,120	112,000
-------	---------
- D

7,025	72,500
-------	--------

(4.16)

2. ¿Cuántas horas hay en 100 días?



- A 240 C 2,400
 B 1,200 D 12,000

(4.16)

3. Fíjate en el patrón de abajo, y elige la oración que lo describe.

26 260 2,600 26,000 260,000

- A Añadir 10 a cada número para obtener el siguiente número de la secuencia.
- B Añadir 100 a cada número para obtener el siguiente número de la secuencia.
- C Multiplicar cada número por 10 para obtener el siguiente número de la secuencia.
- D Multiplicar cada número por 100 para obtener el siguiente número de la secuencia.

(4.16)

4. ¿Qué número hace que la siguiente ecuación sea verdadera?

$$\underline{\hspace{2cm}} \times 6,870 = 68,700$$

- A 1
 B 10
 C 100
 D 1,000

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Área de conocimientos 3
Geometría y razonamiento espacial

Ejercicio 2

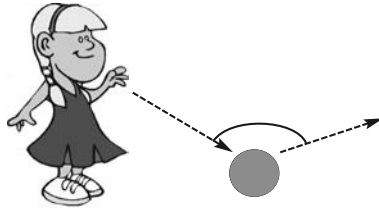
4.8A: Identificar y describir ángulos recto, agudo y obtuso (Estándar de apoyo)

(4.15)

1. ¿Cuál es la suma de grados de los 4 ángulos rectos en un cuadrado?
- A** 90°
B 180°
C 270°
D 360°

(4.14; 4.15)

2. Morgan hizo rebotar una pelota en el piso, como se muestra en la figura de abajo.



La ruta que sigue la pelota rebotada forma un:

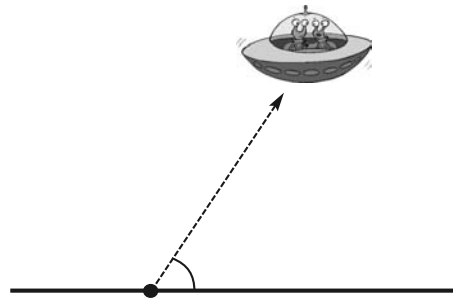
- A** ángulo agudo
B ángulo obtuso
C ángulo recto
D ángulo derecho

(4.15)

3. ¿Cuál es el ángulo que tiene el máximo número de grados?
- A** un ángulo obtuso
B un ángulo agudo
C un ángulo recto
D un ángulo de 45°

(4.14; 4.15)

4. Toni jugaba un videojuego y “liquidó” al invasor espacial. Apuntó con su rayo láser y disparó, como se muestra abajo.



¿Qué clase de ángulo se formó cuando Toni liquidó al invasor espacial?

- A** ángulo agudo
B ángulo obtuso
C ángulo recto
D ángulo derecho

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Área de conocimientos 4
Medición

Ejercicio 3

4.11A: Estimar y usar instrumentos de medición para determinar longitud (incluido perímetro), área, capacidad y peso/masa usando unidades estándar y unidades usuales (Estándar de preparación esencial)

(4.14; 4.15)

- Félix tiene el lápiz usado que se muestra abajo. Usa una regla para medir el lápiz hasta el centímetro más próximo.

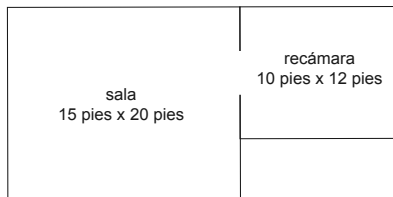


Félix compra un lápiz nuevo que es 3 veces más largo que su lápiz usado. Más o menos, ¿qué tan largo es el lápiz nuevo?

- A 6 centímetros
- B 12 centímetros
- C 18 centímetros
- D 24 centímetros

(4.14; 4.15)

- Tanya está comprando una alfombra para su recámara y su sala. Abajo se muestran los dos cuartos.

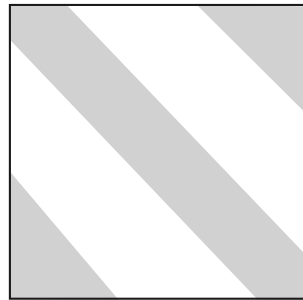


¿Qué tanta alfombra en total necesita comprar Tanya?

- A 114 pies cuadrados
- B 120 pies cuadrados
- C 300 pies cuadrados
- D 420 pies cuadrados

(4.14; 4.15)

- Dannica hizo una mesita portavasos cuadrada para su abuelo en la clase de arte, como se muestra abajo. Usa una regla para medir los lados de la mesita hasta el centímetro más próximo.



¿Cuál es el perímetro de la mesita, en centímetros?

Anota tu respuesta en los cuadros. Luego, llena los circulitos. Asegúrate de usar el valor de posición correcto.

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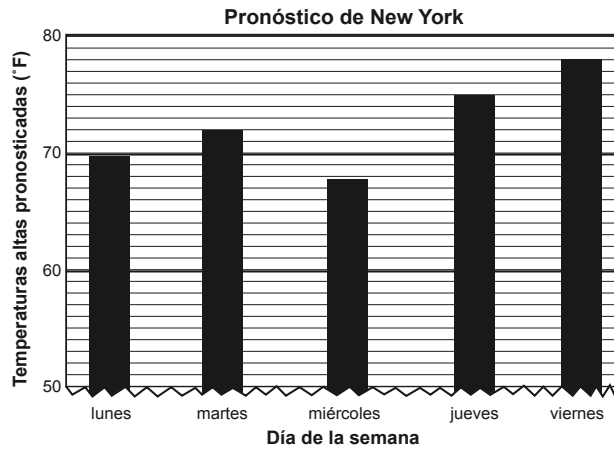
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Área de conocimientos 5
Probabilidad y estadísticas

Ejercicio 10

4.13B: Interpretar gráficas de barras (Estándar de preparación esencial)

Cathy va a ir a New York y examina el pronóstico para la semana que estará allí. Ella anotó la información en la gráfica de abajo. Usa la gráfica para responder a las preguntas 1–3.



(4.14; 4.15)

- ¿Cuánto más fresco hará el día más frío que el día más caliente que se muestran en la gráfica?

A 2°F	C 8°F
B 4°F	D 10°F

(4.14; 4.15)

- ¿Cuál será la diferencia en temperatura entre el lunes y el viernes?

A 6°F	C 9°F
B 8°F	D 10°F

(4.14; 4.15)

- ¿Cuáles serán los dos días entre los cuales la diferencia de temperatura será la mínima?

A lunes y martes
B jueves y viernes
C martes y jueves
D lunes y miércoles



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