
IX. Mathematics, Grade 3

Grade 3 Mathematics Test

The spring 2014 grade 3 Mathematics test was based on standards in the five domains for grade 3 in the *Massachusetts Curriculum Framework for Mathematics* (March 2011). The grade 3 standards can be found on pages 38–42 in the *Framework*, and the five domains are listed below.

- Operations and Algebraic Thinking
- Number and Operations in Base Ten
- Number and Operations—Fractions
- Measurement and Data
- Geometry

The *Massachusetts Curriculum Framework for Mathematics* is available on the Department website at www.doe.mass.edu/frameworks/current.html.

Mathematics test results are reported under five MCAS reporting categories, which are identical to the five framework domains listed above.

The tables at the conclusion of this chapter indicate each released and unreleased common item’s reporting category and the framework standard it assesses. The correct answers for released multiple-choice and short-answer questions are also displayed in the released item table.

Test Sessions

The grade 3 Mathematics test included two separate test sessions. Each session included multiple-choice, short-answer, and open-response questions. Approximately half of the common test items are shown on the following pages as they appeared in grade 3 test & answer booklets.

Reference Materials and Tools

Each student taking the grade 3 Mathematics test was provided with a plastic ruler and a grade 3 Mathematics Tool Kit. A copy of the tool kit pieces used by students to answer question 18 immediately follows the last question in this chapter. An image of the ruler is not reproduced in this publication.

The use of bilingual word-to-word dictionaries was allowed for current and former English language learner students only, during both Mathematics test sessions. No calculators, other reference tools, or materials were allowed.

Grade 3 Mathematics

SESSION 1

You may use your tool kit and MCAS ruler during this session.

You may **not** use a calculator during this session.



DIRECTIONS

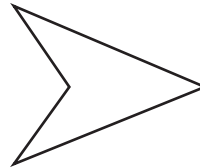
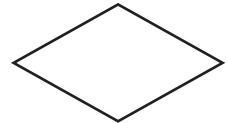
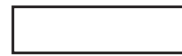
This session contains eight multiple-choice questions, two short-answer questions, and one open-response question. For multiple-choice questions, mark your answers by filling in the circle next to the best answer. For the short-answer and open-response questions, write your answer in the space provided below the question.

- 1 Jodi has 7 CDs. Andy has 3 times as many CDs as Jodi has.

How many CDs does Andy have?

- (A) 14
- (B) 18
- (C) 21
- (D) 24

- 2 Mr. Jacobs showed the shapes below to his class.



Which word describes **all** of the shapes?

- (A) rectangles
- (B) quadrilaterals
- (C) triangles
- (D) squares

Question 3 is a short-answer question. Write your answer to this question in the Answer Box provided.

- 3** In Lisa's class, $\frac{2}{3}$ of the students are girls.

In the Answer Box below, write a different fraction that is equal to $\frac{2}{3}$.

Answer Box

3

Mark your choice for multiple-choice question 4 by filling in the circle next to the best answer.

- 4 Last month James read three books. The chart below shows the number of pages in each book he read.

Books that James Read

Title of Book	Number of Pages
<i>Brave Boy</i>	42
<i>Wild Horses</i>	61
<i>Baseball Hero</i>	58

Which estimate is closest to the total number of pages that James read last month?

- (A) 150
- (B) 160
- (C) 180
- (D) 200

Question 5 is a short-answer question. Write your answer to this question in the Answer Box provided.

- 5** The perimeter of a rug is 36 feet. The rug is in the shape of a square.
What is the length, in feet, of each side of the rug? Write your answer in the Answer Box below.

Answer Box

5

Mark your choices for multiple-choice questions 6 through 10 by filling in the circle next to the best answer.

6 Luis wants to solve the problem below.

$$7 \times 5 \times 2 = \boxed{?}$$

He knows the multiplication fact below.

$$5 \times 2 = 10$$

Which of these can Luis use to finish solving the problem?

- (A) $10 + 5 = \boxed{?}$
- (B) $10 \times 5 = \boxed{?}$
- (C) $10 + 7 = \boxed{?}$
- (D) $10 \times 7 = \boxed{?}$

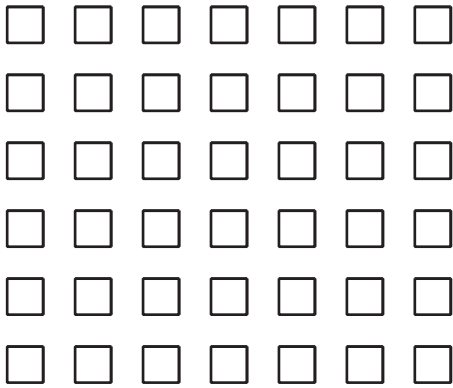
7 Brian sold 181 candy bars. Jean sold 136 candy bars.

How many **more** candy bars did Brian sell than Jean?

- (A) 45
- (B) 55
- (C) 155
- (D) 317

- 8 The model below shows the multiplication fact in the box.

$$6 \times 7 = 42$$



Which of these division facts is also shown by the model?

- (A) $42 \div 6 = 7$
- (B) $7 \div 42 = 6$
- (C) $6 \div 7 = 42$
- (D) $6 \div 42 = 7$

- 9 There are 9 classes at Linda’s school. Each class has 30 children. What is the total number of children at Linda’s school?

- (A) 27
- (B) 39
- (C) 270
- (D) 390

Use your MCAS ruler to answer question 10.

- 10 What is the length, to the nearest half-inch, of the line below?



- (A) $1\frac{1}{2}$ inches
- (B) 2 inches
- (C) $2\frac{1}{2}$ inches
- (D) 3 inches

Write your answers to parts (a) and (b) of open-response question 11 in the spaces provided.

- 11 Two fractions are shown below.

$$\frac{2}{8} \quad \frac{2}{3}$$

- a. Write a number sentence to compare $\frac{2}{8}$ and $\frac{2}{3}$. Use $<$, $>$, or $=$ in your number sentence.

- b. Draw a model that shows your number sentence is correct.

Grade 3 Mathematics

SESSION 2

You may use your tool kit and MCAS ruler during this session.

You may **not** use a calculator during this session.



DIRECTIONS

This session contains five multiple-choice questions, one short-answer question, and one open-response question. For multiple-choice questions, mark your answers by filling in the circle next to the best answer. For the short-answer and open-response questions, write your answer in the space provided.

- 12 The clock below shows the time when Ms. Tate started weeding her garden.



Ms. Tate weeded her garden for 25 minutes.

At what time did she finish weeding her garden?

- (A) 11:30
- (B) 11:35
- (C) 2:15
- (D) 2:20

- 13 Kenny wrote a number pattern using the rule “add 4.” Which of these could be Kenny’s pattern?

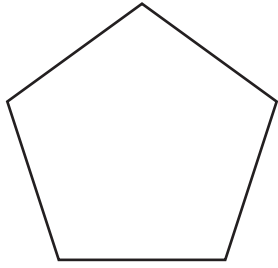
- (A) 3, 7, 11, 15
- (B) 4, 6, 8, 10
- (C) 16, 24, 32, 40
- (D) 22, 18, 14, 10

- 14 Mr. Berkley needs to set up 63 chairs in rows for a play.

What is one way he can set up the 63 chairs for the play?

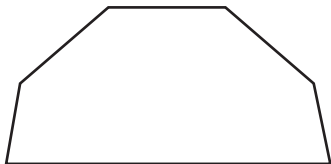
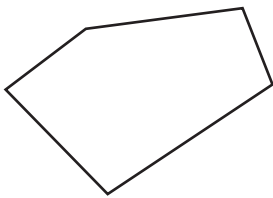
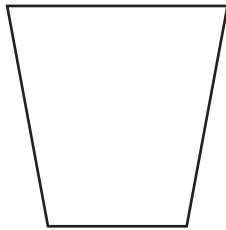
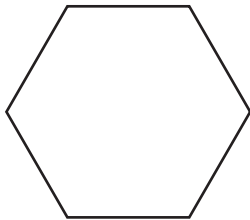
- (A) 7 rows of 8 chairs
- (B) 7 rows of 9 chairs
- (C) 8 rows of 8 chairs
- (D) 8 rows of 9 chairs

15 Tai drew the shape shown below.



Which of these shapes has the same number of sides as Tai's shape?

- (A)
- (B)
- (C)
- (D)



Question 16 is a short-answer question. Write your answer to this question in the Answer Box provided.

16 What is 534 rounded to the nearest **ten**?

Write your answer in the Answer Box below.

Answer Box

16

Mark your choice for multiple-choice question 17 by filling in the circle next to the best answer.

- 17 What is the missing number that makes the equation below true?

$$64 = 8 \times \boxed{?}$$

- | | |
|-----|----|
| (A) | 7 |
| (B) | 8 |
| (C) | 56 |
| (D) | 72 |

Write your answers to parts (a) and (b) of open-response question 18 in the spaces provided.

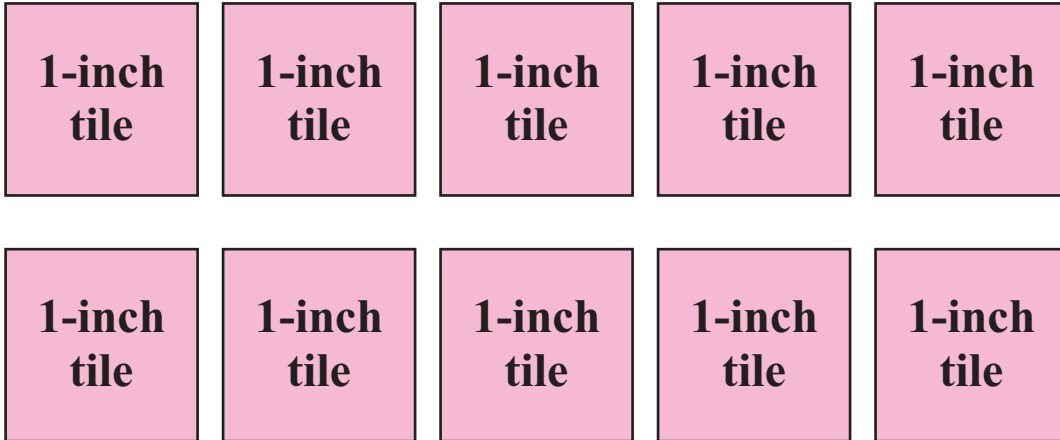
Use the 1-inch tiles from your tool kit to answer question 18.

- 18** In the space below, use some of the 1-inch tiles to make a rectangle. Trace around each tile to show how the tiles go together to make a rectangle.

- a. What is the area of the rectangle you made?

The area of my rectangle is _____ square inches.

- b. Explain how you found the area of the rectangle you made in part (a).



Grade 3 Mathematics
Spring 2014 Released Items:
Reporting Categories, Standards, and Correct Answers*

Item No.	Page No.	Reporting Category	Standard	Correct Answer (MC/SA)*
1	135	<i>Operations and Algebraic Thinking</i>	OA.7	C
2	135	<i>Geometry</i>	G.1	B
3	136	<i>Number and Operations-Fractions</i>	NF.3	4/6
4	137	<i>Operations and Algebraic Thinking</i>	OA.8	B
5	138	<i>Measurement and Data</i>	MD.8	9 feet
6	139	<i>Operations and Algebraic Thinking</i>	OA.5	D
7	139	<i>Number and Operations in Base Ten</i>	NBT.2	A
8	140	<i>Operations and Algebraic Thinking</i>	OA.2	A
9	140	<i>Number and Operations in Base Ten</i>	NBT.3	C
10	140	<i>Measurement and Data</i>	MD.4	B
11	141	<i>Number and Operations-Fractions</i>	NF.3	
12	142	<i>Measurement and Data</i>	MD.1	B
13	142	<i>Operations and Algebraic Thinking</i>	OA.9	A
14	142	<i>Operations and Algebraic Thinking</i>	OA.1	B
15	143	<i>Geometry</i>	G.1	C
16	144	<i>Number and Operations in Base Ten</i>	NBT.1	530
17	145	<i>Operations and Algebraic Thinking</i>	OA.4	B
18	146	<i>Measurement and Data</i>	MD.6	

* Answers are provided here for multiple-choice and short-answer items only. Sample responses and scoring guidelines for open-response items, which are indicated by the shaded cells, will be posted to the Department's website later this year.

Grade 3 Mathematics
Spring 2014 Unreleased Common Items:
Reporting Categories and Standards

Item No.	Reporting Category	Standard
19	<i>Number and Operations in Base Ten</i>	NBT.1
20	<i>Number and Operations-Fractions</i>	NF.2
21	<i>Measurement and Data</i>	MD.7
22	<i>Operations and Algebraic Thinking</i>	OA.9
23	<i>Measurement and Data</i>	MD.3
24	<i>Geometry</i>	G.2
25	<i>Operations and Algebraic Thinking</i>	OA.3
26	<i>Operations and Algebraic Thinking</i>	OA.1
27	<i>Number and Operations-Fractions</i>	NF.1
28	<i>Geometry</i>	G.1
29	<i>Operations and Algebraic Thinking</i>	OA.8
30	<i>Measurement and Data</i>	MD.2
31	<i>Number and Operations in Base Ten</i>	NBT.1
32	<i>Operations and Algebraic Thinking</i>	OA.5
33	<i>Number and Operations-Fractions</i>	NF.3
34	<i>Measurement and Data</i>	MD.5
35	<i>Number and Operations in Base Ten</i>	NBT.2
36	<i>Measurement and Data</i>	MD.4