Name _____

Minnesota Comprehensive Assessments-Series III

Mathematics Item Sampler
Grade 4

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Minnesota Department of
Education

State of Minnesota
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Roseville, MN 55113-4266

Mathematics Test
General Directions

- This test contains four segments.
- You may write in this test book as scratch paper. Grid paper is also provided at the back of the test book.
- For each question, choose the answer you think is best.
- Look at the sample that shows how to answer the question.

Sample Question Answered in Test Book:

$20 - 8 =$

A. 8
B. 10
C. 12
D. 16

- You **may not** use a calculator for Segment 1.
- You **may** use a calculator for Segments 2, 3, and 4.
- When you finish a segment of the test, stop and check your answers. Then use the sticker given to you to seal it. Once you seal a segment, you cannot go back to it. Each segment must be sealed before you move on to the next segment.

Put sticker here

Segment 1

You will be told when to begin this segment.

You **MAY NOT** use a calculator for this segment.

Mathematics Test — Segment 1

1. There are 35 students going on a class trip. The students ride in vans. There are 7 students riding in each van. How many vans are needed to take all the students?

A. 4
B. 5
C. 6
D. 7

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2. A truck has 50 boxes of jump ropes. Each box contains 100 jump ropes. How many jump ropes are on the truck?

A. 50
B. 500
C. 5,000
D. 50,000

ITEM SAMPLER.
MAY BE DUPLICATED.

Go on to the next page.

3. Two numbers are multiplied together.

$$\begin{array}{r} 724 \\ \times 8\square \\ \hline 62{,}264 \end{array}$$

Which digit goes in the box?

A. 0
B. 1
C. 4
D. 6

---

4. Divide.

$$908 \div 4$$

A. 202
B. 212
C. 227
D. 247

1

5. What is 9.582 rounded to the nearest tenth?

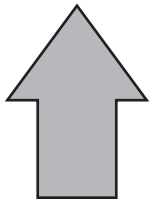
A. 9.5
B. 9.58
C. 9.6
D. 10

---

6. Robert has 54 pencils. He has 1 box of pencils and 3 packages of pencils. The box has 24 pencils. Which equation can be used to find p, the number of pencils in each package?

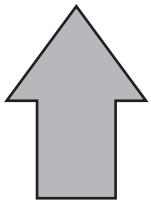
A. $p = 54 + 3 \times 24$
B. $24 = 54 + 3 \times p$
C. $54 = 3 + 24 \times p$
D. $54 = 24 + 3 \times p$

7. A figure is shown.

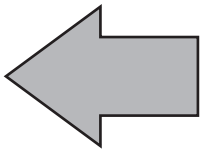


Which shows a 90° counterclockwise rotation of the figure?

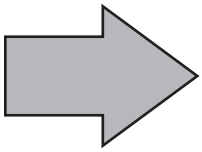
A.



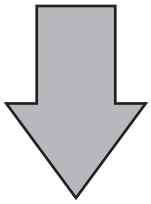
B.



C.



D.



Put sticker here

This is the end of Segment 1.

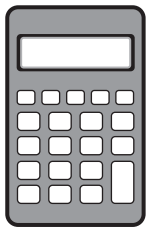
Check your work. Then seal this segment.

Put sticker here

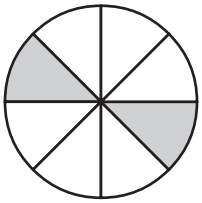
Segment 2

You will be told when to begin this segment.

You **MAY** use a calculator for this segment.

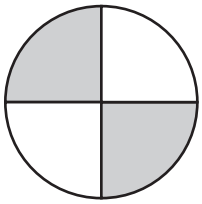


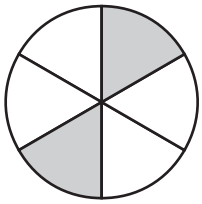
8. A fraction model is shown.

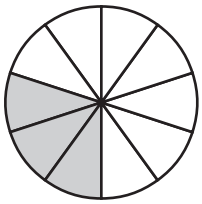


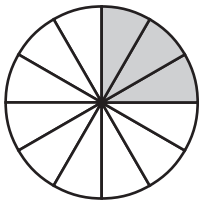
Which shows an equivalent fraction?

2

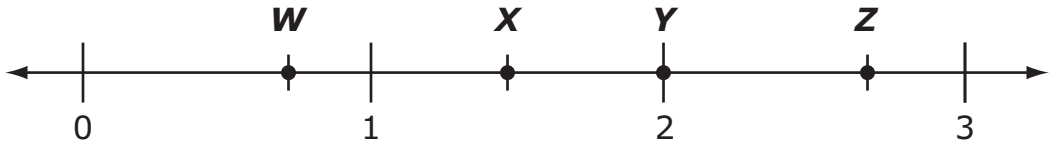
A. 

B. 

C. 

D. 

9. Which point is shown at $\frac{2}{3}$?



A. *W*
B. *X*
C. *Y*
D. *Z*

2

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10. In the number 200.358, which digit is in the hundredths place?

A. 2
B. 3
C. 5
D. 8

11. Which shape is a rhombus?

A.

B.

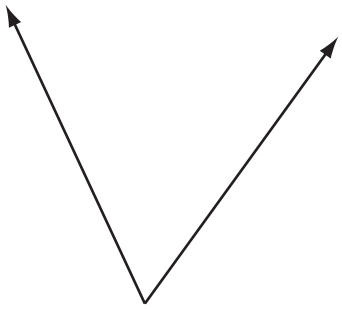
C.

D.

2

---

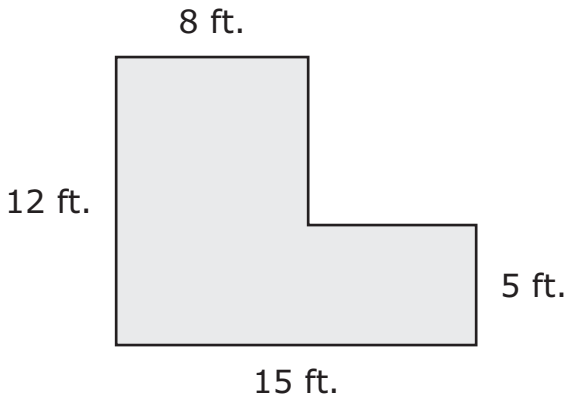
12. An angle is shown.



Which describes the angle?

A. Acute
B. Obtuse
C. Right
D. Straight

13. The shape of a floor is shown.

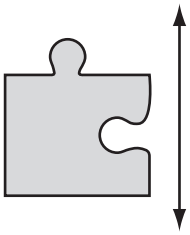


What is the area of the floor?

A. 40 sq. ft.
B. 131 sq. ft.
C. 171 sq. ft.
D. 180 sq. ft.

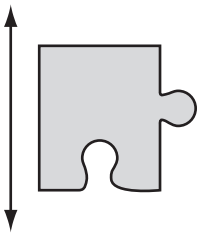
2

14. A shape is shown.

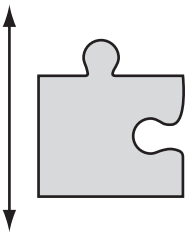


Which shows a translation of the shape over the line?

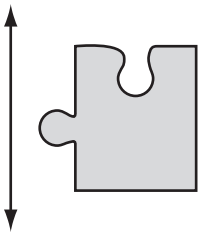
A.



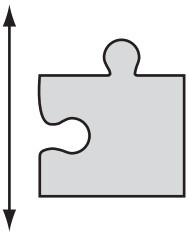
B.



C.



D.



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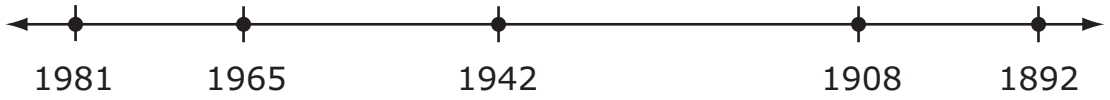
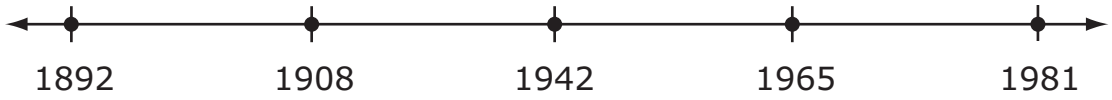
15. A student creates a timeline for a history project. Which shows a timeline?

A.

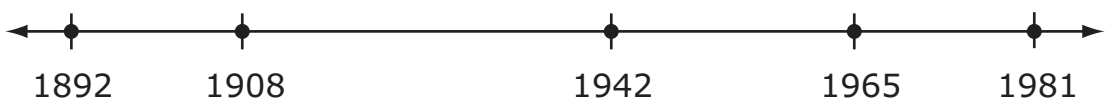


B.



C.

D.



2

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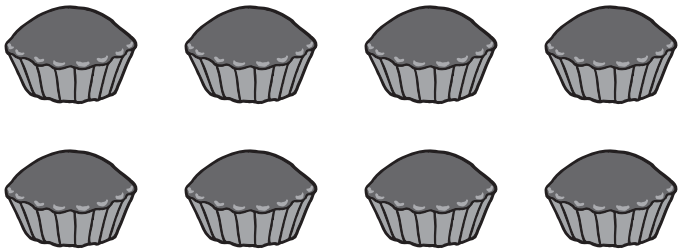
16. A camping group bought 15 sleeping bags that cost $42 each and a tent that cost $160. What was the total cost of the sleeping bags and the tent?

A. $217
B. $630
C. $790
D. $2,442

17. Jason has 8 cupcakes.



He eats $\frac{1}{8}$ of the cupcakes and gives $\frac{2}{8}$ of the cupcakes to his friends.
What fraction of the cupcakes are left?

2

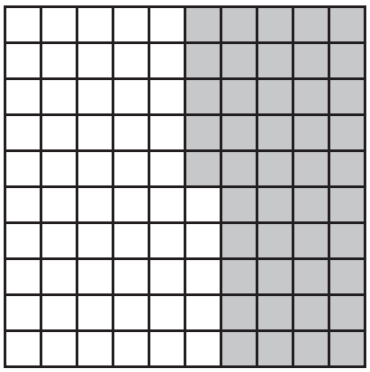
A. $\frac{1}{8}$

B. $\frac{3}{8}$

C. $\frac{5}{8}$

D. $\frac{3}{5}$

18. A decimal number is shown on a grid.



Which number is less than the number shown on the grid?

A. 0.9
B. 0.48
C. 0.450
D. 0.275

2

---

19. Which fraction is equivalent to 0.23?

A. $\frac{1}{23}$

B. $\frac{23}{10}$

C. $\frac{23}{100}$

D. $\frac{2}{3}$

20. A table is shown.

f	*g*
4	2
8	4
16	8

What rule was used to make the table?

A. $g = 2f$

B. $g = \frac{f}{2}$

C. $g = f + 2$

D. $g = 2f + 2$

2

---

21. An equation is shown.

$$12 _____ 5 = 17 + 43$$

Which symbol makes the equation true?

A. $+$

B. $-$

C. $\times$

D. $\div$

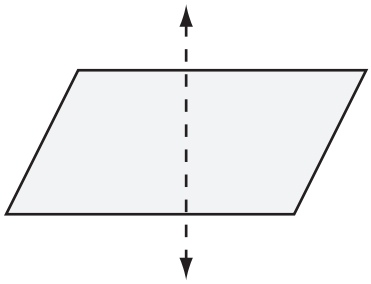
22. Which statement is true about an obtuse triangle?

A. It has 2 acute angles.
B. It has 2 obtuse angles.
C. It can be a right triangle.
D. It can be an acute triangle.

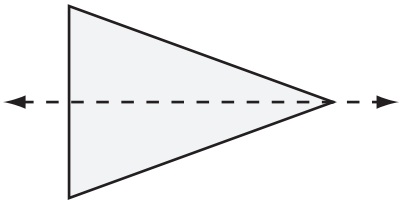
2

23. Which shows a line of symmetry?

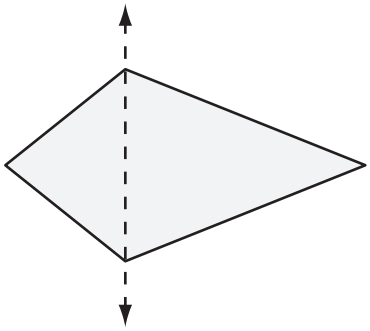
A.



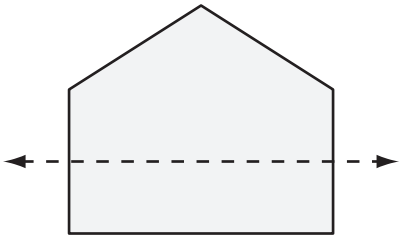
B.



C.



D.



24. Kira is using 1-inch square tiles to cover a table top. The table top is 24 inches long and 18 inches wide. She lays the tiles into strips of 6.

How many strips of tiles will Kira need to cover the table with no gaps or overlaps?

A. 14

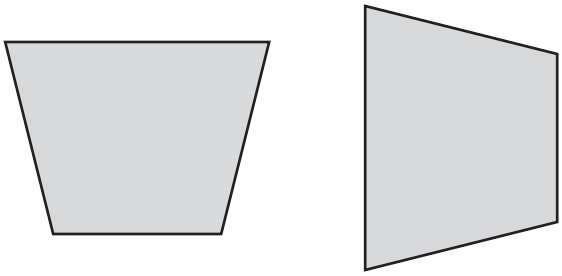
B. 18

C. 72

D. 432

2

25. Ron draws a trapezoid, then rotates it 90°.



Which statement is true about the 2 trapezoids?

A. They are congruent because all trapezoids are congruent.

B. They are congruent because rotating a trapezoid does not change its size and shape.

C. They are not congruent because rotating the trapezoid changes its side lengths.

D. They are not congruent because rotating the trapezoid changes its angle measures.

2

Put sticker here

This is the end of Segment 2.

Check your work. Then seal this segment.

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Minnesota Department of Education

MCA Item Sampler Teacher's Guide

mde.testing@state.mn.us

An Introduction to the MCA

The Minnesota Comprehensive Assessments are reading, mathematics and science tests that help schools and districts measure student progress toward the state's academic standards. The grades 3–8 mathematics assessments became operational in 2011 as the Minnesota Comprehensive Assessments-Series III (MCA-III) and are aligned to the 2007 Minnesota Academic Standards. In 2012, the science assessments became operational as the Minnesota Comprehensive Assessments-Series III (MCA-III) and are aligned to the 2009 Minnesota Academic Standards. In 2013, the grades 3-8 and 10 reading assessments are aligned to the 2010 Minnesota Academic Standards as the Minnesota Comprehensive Assessments-Series III (MCA-III). In 2014, the grade 11 mathematics assessment is aligned to the 2007 Minnesota Academic Standards as the Minnesota Comprehensive Assessments-Series III (MCA-III).

The Purpose of the MCA Item Samplers

An item sampler is not a complete test. It contains a smaller number of the items that students will see on a full-length test in the spring. The MCA Item Samplers were developed to familiarize students and teachers with the format of the MCA and the kinds of items that will appear on them.

This MCA Item Sampler is not a real test. It should not be used to predict how well students will do on the tests. However, students may feel more comfortable with the tests if they have reviewed the Item Samplers prior to the test.

How the MCA Item Samplers Were Created

The Item Samplers mirror the format of the MCA. The student directions, segment layouts, and answer sheet each reflect the way the test will look in the spring, except that the Item Sampler is shorter than the actual test. As with all MCAs, the reading passages and the math and reading questions have been thoroughly reviewed by Minnesota teachers prior to testing. Minnesota students have answered these questions on previous tests.

The distribution of question types and their aligned content selected for the Item Sampler generally reflects a range of items from each strand in the Minnesota Academic Standards. Whenever possible, the Item Samplers have the following designs:

Math:

- Two segments
  - Segment One does not allow a student to use a calculator.
  - The actual MCA has four segments
- Approximately twenty-four multiple-choice items

The Contents of This Teacher's Guide

The Answer Key identifies the answers and solutions to the questions. It also identifies the strand/sub-strand/benchmark from the Minnesota Academic Standards for the question.

State Standards & Test Specifications

The Item Samplers are primarily intended to familiarize teachers and students with the **format** of the MCA. The best preparation for the **content** of the MCA is done as a part of your curriculum planning. When doing that, reference the Minnesota Academic Standards and the test specifications for the MCA. For further questions about the MCAs, email us at mde.testing@state.mn.us.

Grade 4 Teacher's Guide

MCA-III Item Sampler Answer Key
Grade 4 Math

Item #	Correct Answer	Item Type	Strand	Standard	Benchmark
1	B	MC	1	1	01
2	C	MC	1	1	02
3	D	MC	1	1	03
4	C	MC	1	1	06
5	C	MC	1	2	07
6	D	MC	2	2	02
7	B	MC	3	3	03
8	D	MC	1	2	01
9	A	MC	1	2	02
10	C	MC	1	2	04
11	B	MC	3	1	02
12	A	MC	3	2	02
13	B	MC	3	2	04
14	B	MC	3	3	01
15	D	MC	4	1	01
16	C	MC	1	1	05
17	C	MC	1	2	03
18	D	MC	1	2	05
19	C	MC	1	2	06
20	B	MC	2	1	01
21	C	MC	2	2	01
22	A	MC	3	1	01
23	B	MC	3	3	02
24	C	MC	3	2	03
25	B	MC	1	3	04

Item # — The number of the question in the Item Sampler.

Correct Answer — Answers to multiple-choice questions are listed.

Item Type — Multiple Choice **(MC)**

Strand — In mathematics, the MCA-III measures four strands:

1. Number and Operation
2. Algebra
3. Geometry and Measurement
4. Data Analysis and Probability

Standard — Each strand has one or more standards

Benchmark — Each standard has one or more benchmarks. See the Academic Standards or test specification for further explanation of each benchmark.