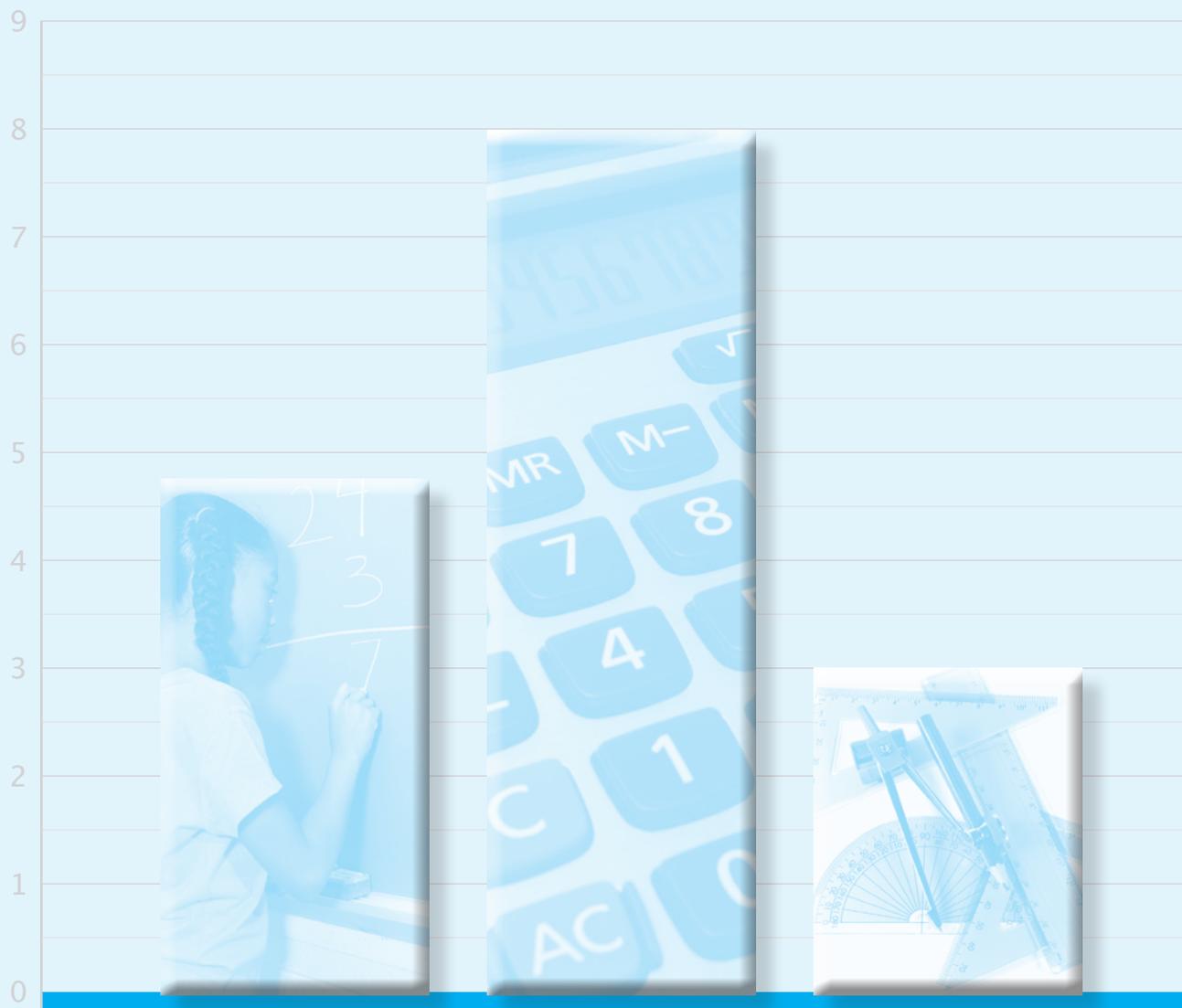


3rd
4th
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Grade
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meapTM
Michigan Educational Assessment Program

Item Descriptors



MATHEMATICS
FALL 2009

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Portions of this work were previously published.

Printed in the United States of America.

Students were instructed to read the directions below silently as the test administrator read them aloud.

PART 1

DIRECTIONS

This test has two parts. You may **NOT** use a calculator on Part 1. You may use open space in this test booklet for scratch paper. No additional paper may be used.

Part 1 has only multiple-choice questions. You must choose the **best** answer from among four answer choices.

- Use only a No. 2 pencil to mark your answer in your **Answer Document**.
- If you erase an answer, be sure to erase it completely.
- If you skip a question, be sure to mark the answer to the next question in the correct place in your **Answer Document**.

Sample Multiple-Choice Question:

Jackie had 56 trading cards. She gave some of the cards to Wanda. Then Jackie had 23 trading cards left. What was the total number of cards Jackie gave to Wanda?

- A** 23
- B** 33
- C** 39
- D** 79

For this sample question, the correct answer is **B**. Circle **B** is filled in on the sample question in your **Answer Document**.

Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page.

If you finish early, you may check your work in Part 1 of the test **ONLY**. Do **NOT** look at questions in Part 2 of the test.

NOTE: For each item listed throughout this booklet, the first statement is a summary of the Michigan Grade Level Content Expectation (GLCE) and the second statement or problem is the descriptor for the item's stem or question.

- 1 N.ME.04.18:** Read, write, interpret, and compare decimals.

Identify a decimal fraction greater than the given decimal fraction.

- A** only portion after decimal is greater
- B** correct
- C** only portion after decimal is greater
- D** $0.xy > 0.a$ ($x < a$: x, y, a are positive)

- 2 N.ME.04.18:** Read, write, interpret, and compare decimals.

Translate the word form of the decimal to the standard form.

- A** transposed 1s and tenths
- B** correct tenths and hundreds, but incorrect 1s
- C** transposed tenths and hundredths
- D** correct

- 3 N.MR.04.19:** Translate between fractions and decimals.

Translate the decimal to a fraction.

- A** $0.x = x/10,000$
- B** $0.x = x/1,000$
- C** $0.x = x/100$
- D** correct

- 4 N.MR.04.19:** Translate between fractions and decimals.

Translate the fraction to a decimal.

- A** tenths = hundredths
- B** $a/b = 0.ab$ ($a, b \neq \text{zero}$)
- C** correct
- D** $a/b = a.b$ ($a, b \neq \text{zero}$)

- 5 N.MR.04.23:** Understand relationships within fraction families.

Simplify the fraction.

- A** incorrect conversion
- B** correct
- C** incorrect conversion
- D** incorrect conversion

- 6 N.MR.04.23:** Understand relationships within fraction families.

Identify the equivalent fraction.

- A** nonequivalent; reciprocal of given fraction
- B** nonequivalent fraction
- C** $a/b = (a + 1)/(b + 1)$, $a < b$
- D** correct

- 7 N.MR.04.22:** Locate fractions with denominators ≤ 12 on a number line.

Locate the mixed number on the number line.

- A** fraction of wholes on left and right of point
- B** incorrect whole, correct fraction of mixed number
- C** incorrect fraction, correct whole of mixed number
- D** correct

- 8 N.MR.04.25:** Write improper fractions as mixed numbers.

Translate the improper fraction to a mixed number.

- A** correct
- B** $a/b = (a - b) + b/(a + b)$, $a > b$
- C** 1 greater than correct mixed number
- D** twice the value of the correct mixed number

- 9 N.MR.04.25:** Write improper fractions as mixed numbers.

Translate the improper fraction to the sum of a whole number plus a fraction.

- A** correct
- B** $a/b = a + 1/b, a > b$
- C** $a/b = 1/b + 1/a, a > b$
- D** $a/b = a - b + 1/b, a > b$

- 10 N.MR.04.22:** Locate fractions with denominators ≤ 12 on a number line.

Identify the location of a point on the number line.

- A** $1 / (\text{number of "hops"})$
- B** correct
- C** miscounted by one "hop" or estimated location of point
- D** added one whole to location of point

- 11 N.MR.04.26:** Compare and order up to three fractions.

Compare (improper) fractions to mixed numbers; compare fractions.

- A** greater improper fraction < smaller mixed number
- B** positive mixed number < fraction less than 1
- C** greater fraction < smaller fraction
- D** correct

- 12 N.MR.04.26:** Compare and order up to three fractions.

Order three unit fractions from least to greatest.

- A** greatest to least
- B** correct
- C** mixed order
- D** mixed order

13 N.ME.04.04: List all factors and factor pairs of numbers up to 50.

List all factor pairs for the given number.

- A** correct
- B** 3 correct factor pairs, 1 incorrect factor pair
- C** 3 of 4 factor pairs
- D** 2 of 4 factor pairs

14 N.ME.04.04: List all factors and factor pairs of numbers up to 50.

List all factor pairs for the given number.

- A** one missing factor, one nonfactor multiple
- B** correct
- C** 6 of 8 factors
- D** 6 of 8 factors

15 N.ME.04.05: List factors and multiples.

Select the list of multiples for the given number.

- A** correct
- B** list contained 5 multiples, 1 non-multiple
- C** list contained 5 multiples, 1 non-multiple
- D** list contained 5 multiples, 1 non-multiple

16 N.ME.04.05: List factors and multiples.

Identify the number that is a multiple of two given numbers.

- A** multiple of one number
- B** multiple of one number
- C** correct
- D** multiple of one number

- 17 N.MR.04.07:** Use factors/multiples to compose/decompose numbers.

Identify the number that is a multiple of two given numbers and less than the third given number.

- A** multiple of a and multiple of b = multiple of (a + b)
- B** correct
- C** multiple of one number
- D** multiple of one number

- 18 N.MR.04.07:** Use factors/multiples to compose/decompose numbers.

Identify the number that is not a multiple of the two given numbers.

- A** correct
- B** multiple of both numbers
- C** multiple of both numbers
- D** multiple of both numbers

- 19 N.ME.04.09:** Solve multiplication problems using the distributive property.

$$(a \times b) + (a \times c) = a \times \underline{\quad}$$

- A** a + c
- B** b - c
- C** a + b
- D** correct

- 20 N.ME.04.09:** Solve multiplication problems using the distributive property.

Given the product, show the distribution.

- A** correct
- B** $(a + b) \times (c + b) = (a \times b) + (c \times b)$
- C** $(0.a \times c) + (b \times c) = (a \times b) + (c \times b)$
- D** $(a \times c) \times (b \times c) = (a \times b) + (c \times b)$

21 N.FL.04.10: Multiply whole numbers and use the distributive property.

Multiply two whole numbers.

- A** added instead of multiplied
- B** correct
- C** over by 100
- D** multiplied by wrong factor

22 N.FL.04.10: Multiply whole numbers and use the distributive property.

Multiply two whole numbers.

- A** incorrect use of distributive property in 100s place
- B** incorrect use of distributive property in 100s place
- C** incorrect use of distributive property in 10s place
- D** correct

23 N.FL.04.11: Divide whole numbers by 1-digit numbers and by 10.

Divide the 3-digit number by the 1-digit number.

- A** computation error
- B** computation error
- C** correct
- D** computation error

24 N.FL.04.11: Divide whole numbers by 1-digit numbers and by 10.

Divide the 4-digit number by the 1-digit number.

- A** correct remainder, incorrect quotient ($x0y = xy$)
- B** incorrect remainder, incorrect quotient
- C** correct
- D** incorrect remainder, incorrect quotient

25 N.FL.04.12: Find the value of unknowns in equations.

Identify the divisor shown as a variable in the equation.

- A** correct
- B** incorrect divisor
- C** incorrect divisor
- D** incorrect divisor

26 N.FL.04.12: Find the value of unknowns in equations.

Identify the divisor shown as a blank in the equation.

- A** incorrect divisor
- B** correct
- C** incorrect divisor
- D** incorrect divisor

27 N.ME.04.24: Understand improper fractions and locate them on a number line.

Identify the fraction with a value greater than 1.

- A** fraction with value less than 1
- B** fraction with value less than 1
- C** fraction with value less than 1
- D** correct

28 N.ME.04.17: Locate tenths and hundredths on a number line.

Identify the location of a point on the number line.

- A** correct
- B** counted by tenths right to left from 1, i.e., complement
- C** counted tenths as ones
- D** counted tenths as ones from right to left

29 N.MR.04.21: Explain why equivalent fractions are equal.

Use the fraction strip model to identify the equivalent fraction.

- A** nonequivalent fraction
- B** nonequivalent fraction
- C** correct
- D** nonequivalent fraction

30 N.MR.04.21: Explain why equivalent fractions are equal.

Given a value, identify the location of an equivalent fraction on the number line.

- A** counted eighths as fourths
- B** counted incorrectly
- C** correct
- D** one = fraction less than one

31 N.ME.04.15: Know decimals up to two places and relate them to money.

Given the name and the picture of a coin, identify the decimal value.

- A** correct
- B** hundredths = tenths
- C** added \$1 to correct value
- D** hundredths = ones

32 N.ME.04.15: Know decimals up to two places and relate them to money.

Given the area model, identify the shaded portion as a decimal.

- A** hundredths = ones
- B** hundredths = tenths
- C** correct
- D** hundredths = thousandths

33 D.RE.04.03: Solve problems using data tables and bar graphs.

Use the pattern shown in the table to find the value outside of the table.

- A** first missing value in table; does not follow pattern
- B** last missing value in table; does not follow pattern
- C** first value given outside table; does not follow pattern
- D** correct

34 N.MR.04.14: Solve problems involving multiplication and division.

Identify the operation in a contextualized setting.

- A** added instead of subtracted
- B** multiplied instead of subtracted
- C** divided instead of subtracted
- D** correct

35 N.MR.04.14: Solve problems involving multiplication and division.

Divide in a contextualized setting.

- A** incorrect quotient
- B** correct
- C** incorrect divisor
- D** transposed ones place and tens place of correct quotient

36 N.ME.04.01: Read, write, compare, and order numbers up to 1,000,000.

Identify the middle value of a compound inequality.

- A** greater value than both given numbers
- B** greater value than both given numbers
- C** correct
- D** smaller value than both given numbers

37 N.ME.04.02: Compose and decompose numbers to up 1,000,000.

Decompose the given 6-digit number.

- A** ten thousands = thousands
- B** hundreds = tens
- C** thousands = hundreds
- D** correct

38 N.ME.04.03: Know the size and place value of numbers up to 1,000,000.

Identify the value of the digit of the given 6-digit number.

- A** face value, thousands = ones
- B** thousands = tens
- C** thousands = hundreds
- D** correct

39 N.MR.04.06: Know prime numbers.

Identify the prime number.

- A** composite even number
- B** correct
- C** composite even number
- D** composite odd number

40 N.FL.04.08: Add and subtract whole numbers fluently.

Subtract the 3-digit number from the 3-digit number.

- A** correct
- B** error in ones place
- C** subtracted smaller values from larger values
- D** error in tens place

41 N.MR.04.13: Use multiplication and division to simplify computations and check results.

Given the multiplication number sentence, identify the number sentence that can verify it.

- A** added product to factor
- B** subtracted factor from product
- C** multiplied factor by product
- D** correct

42 N.ME.04.16: Know and identify terminating decimals.

Translate the decimal to a fraction.

- A** $0.0x = 1/x$
- B** $0.0x = 1/x00$
- C** $0.0x = x/10$
- D** correct

43 N.ME.04.20: Understand fractions as parts of a set of objects.

Identify the fractional part of the set of shapes.

- A** $1/(\text{number of shaded}), \text{ not shaded/total}$
- B** correct
- C** ratio of shaded to unshaded
- D** unshaded fractional part of group, i.e., complement

44 N.MR.04.27: Add and subtract common fractions less than 1.

Add two fractions.

- A** added instead of subtracted
- B** added numerators, added denominators
- C** correct numerator, incorrect denominator
- D** correct

45 N.MR.04.28: Solve fraction problems involving sums and differences.

Compute with fractions in a contextualized setting.

- A** incorrect numerator, correct denominator
- B** correct
- C** complement
- D** added numerators, added denominators

46 N.MR.04.29: Find the value of an unknown in equations with fractions.

Find the fractional addend represented as a variable in the equation.

- A** added addend to sum
- B** added addend to sum, then added numerators, denominators
- C** added already common denominators, $a/x + b/x = (a + b)/2x$
- D** correct

Students were instructed to read the directions below silently as the test administrator read them aloud.

PART 2

DIRECTIONS

You will now begin Part 2 of this test. You may use a calculator on this part of the test, and you may use open space in this test booklet for scratch paper. No additional paper may be used.

This part of the test has only multiple-choice questions. You must choose the **best** answer from among four answer choices.

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Sample Multiple-Choice Question:

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- A** 23
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- D** 79

For this sample question, the correct answer is **B**. Circle **B** is filled in on the sample question in your **Answer Document**.

Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page.

If you finish early, you may check your work in Part 2 of the test **ONLY**. Do **NOT** look at questions in Part 1 of the test.

- 47 N.MR.04.30:** Multiply fractions using repeated addition, area, or array models.

Translate the whole number times the unit fraction to an addition expression.

- A** $a \times 1/b = a/b + a/b + a/b$
- B** $a \times 1/b = 1/a + 1/a + 1/a + 1/a$
- C** correct
- D** $a \times 1/b = a/ab + a/ab + a/ab + a/ab$

- 48 N.MR.04.31:** Solve problems by adding and subtracting decimals.

Subtract with money in a contextualized setting.

- A** divided instead of subtracted
- B** correct
- C** added instead of subtracted
- D** multiplied instead of subtracted

- 49 N.FL.04.32:** Add and subtract decimals through hundredths.

Subtract one decimal in hundredths from another.

- A** correct
- B** error in tenths place
- C** subtracted smaller values from larger values
- D** error in ones place and tenths place

- 50 N.FL.04.33:** Multiply and divide decimals up to two decimal places.

Divide the decimal in hundredths by the whole number.

- A** error in hundredths place
- B** correct
- C** incorrect quotient
- D** moved decimal to left or divided by $1/10$ of divisor

51 N.FL.04.34: Estimate answers involving addition, subtraction, or multiplication.

Estimate using subtraction of 6-digit numbers.

- A** ten times larger than estimate
- B** truncated subtrahend instead of rounded
- C** correct
- D** 1/10 of truncated subtrahend instead of rounded

52 N.FL.04.35: Know and use approximation appropriately.

Estimate using subtraction of 6-digit numbers.

- A** 1/1000 of estimate of difference
- B** 1/100 of estimate of difference
- C** 1/10 of estimate of difference
- D** correct

53 M.UN.04.01: Measure using common tools and appropriate units.

Identify the unit of mass.

- A** length
- B** volume
- C** volume
- D** correct

54 M.PS.04.02: Give answers to a reasonable degree of precision.

Read the scale of weight in pounds.

- A** underestimate
- B** underestimate
- C** correct
- D** overestimate

- 55 M.UN.04.03:** Measure and compare integer temperatures in degrees.

Order temperatures in Celsius from coldest to warmest.

- A** ignored signs on temperatures
- B** mixed order
- C** mixed order
- D** correct

- 56 M.TE.04.05:** Convert units of measure within a system.

Convert time in seconds to minutes and seconds.

- A** 100 seconds = 1 minute
- B** correct
- C** 40 seconds = 1 minute
- D** 25 seconds = 1 minute

- 57 M.TE.04.06:** Know and understand the formulas for the perimeter and area of a square and rectangle.

Calculate the perimeter of the rectangle, given the length and width.

- A** perimeter = length + width
- B** perimeter = length + width + width
- C** correct
- D** area measure

- 58 M.TE.04.07:** Find the length of a rectangle, given the width and area or perimeter.

Find the area of the rectangle, given the width.

- A** length of one side = perimeter – opposite side length
- B** length of one side = perimeter – length of same side
- C** length of one side = 2 (opposite side length)
- D** correct

- 59 M.TE.04.08:** Find the side of a square, given its perimeter or area.

Find the side of a square, given its perimeter.

- A** side length of rectangle with area measure of given perimeter
- B** correct
- C** area measure of square with same side length
- D** used given perimeter as one side length of square

- 60 M.PS.04.09:** Solve perimeter and area problems of rectangles in compound shapes.

Find the area of a compound shape using the graphic.

- A** added measurements shown in graphic to find area
- B** perimeter measure = area measure
- C** correct
- D** area = length \times width, but included extra sections

- 61 M.TE.04.10:** Know right angles and compare angles to right angles.

Identify the characteristic that does not describe a right angle.

- A** correct quality of right angle
- B** correct quality of right angle
- C** correct quality of right angle
- D** correct

- 62 M.PS.04.11:** Solve contextual problems about surface area.

Calculate the surface area of a cube, given side length.

- A** surface area of one face
- B** measure of edge length \times number of faces
- C** surface area of object minus 2 of its faces
- D** correct

63 G.GS.04.01: Identify and draw parallel and intersecting lines.

Identify parallel lines.

- A** neither parallel nor perpendicular lines
- B** perpendicular lines
- C** neither parallel nor perpendicular lines
- D** correct

64 G.GS.04.02: Identify basic geometric shapes and solve problems.

Calculate the perimeter of an equilateral triangle, given the side length.

- A** length of one side of triangle
- B** length of two sides of triangle
- C** correct
- D** perimeter of square with same side lengths

65 G.SR.04.03: Identify the attributes of 3-D solids.

Identify the number of faces of a 3-D solid.

- A** number of sides on base or number of faces without base
- B** correct
- C** too many faces
- D** too many faces

66 G.TR.04.04: Recognize plane figures that have line symmetry.

Determine the number of lines of symmetry, given a name and a graphic.

- A** too few lines of symmetry
- B** too few lines of symmetry
- C** correct
- D** twice the number of lines of symmetry

67 G.TR.04.05: Recognize transformations of a 2-D object.

Recognize the rotation of a shape.

- A** translation
- B** incorrect rotation
- C** correct
- D** reflection

68 D.RE.04.01: Construct tables and bar graphs from given data.

Match the table to the bar graph.

- A** correct bars, missing labels
- B** correct
- C** scale of convenience
- D** correct bars, missing labels

69 D.RE.04.02: Order a given set of data; find the median and range.

Find the median of an unordered, odd-numbered set of data.

- A** mode (also minimum)
- B** truncated mean
- C** correct
- D** false median (middle value of unordered list)



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