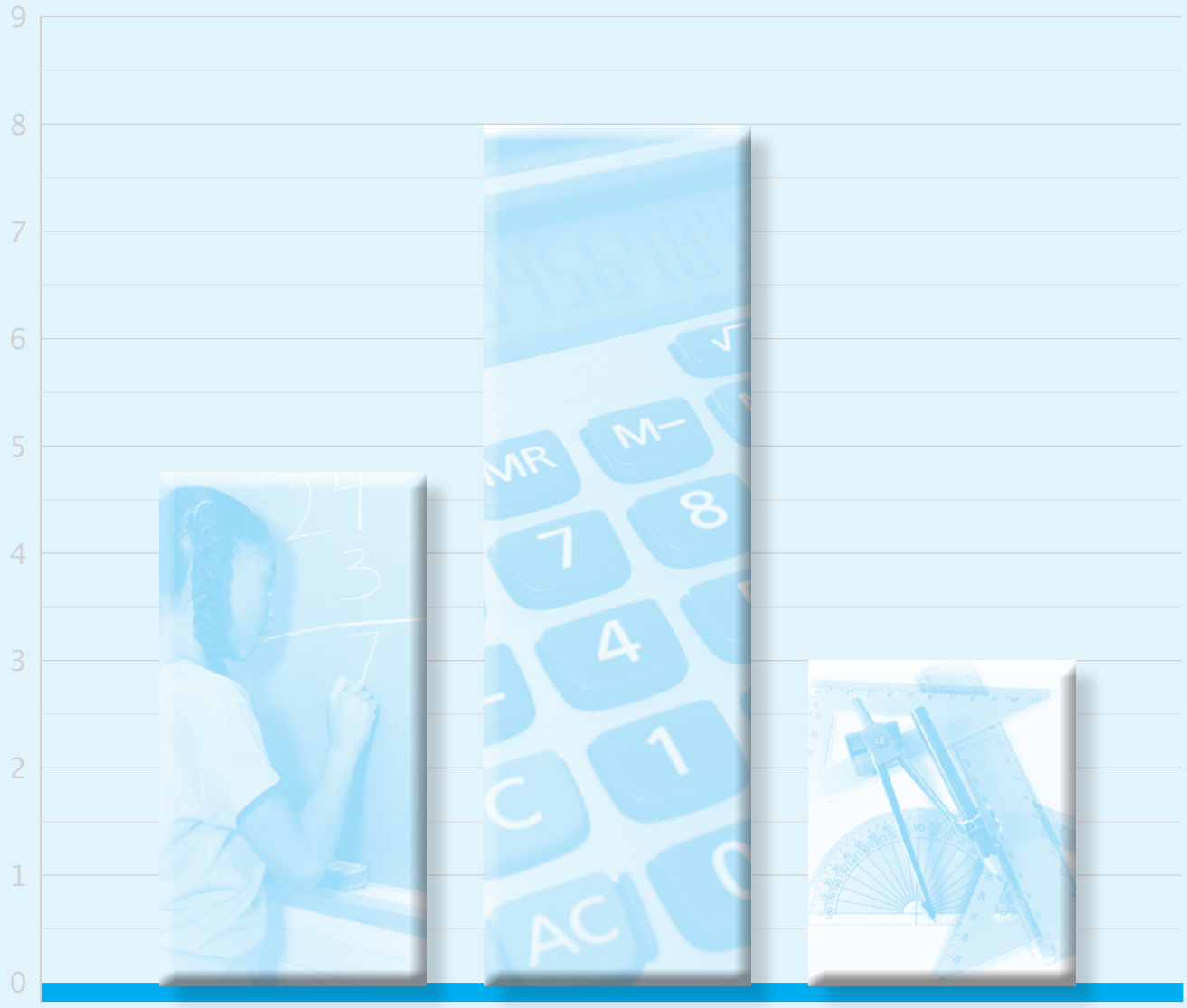
3rd
4th
5th
6th
7th
8th

Grade 6

meap™
Michigan Educational Assessment Program

Item Descriptors



MATHEMATICS

FALL 2009

MICHIGAN STATE BOARD OF EDUCATION

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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:

Marty wants to put 75 CDs into cases. Each case holds exactly 8 CDs. What is the **least** number of cases that Marty will need to hold all his CDs?

A 8

B 9

C 10

D 11

For this sample question, the correct answer is **C**. Circle **C** 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.MR.05.01:** Understand the meaning of division of whole numbers.

a ÷ b = c Rd

A correct

B transposed remainder and quotient

C transposed remainder and quotient, multiplied by remainder

D multiplied remainder by quotient, added divisor

2 **N.MR.05.01:** Understand the meaning of division of whole numbers.

Translate the fraction to a division expression.

A correct

B a/b = b/a, a ≠ b

C a/b = a × b

D a/b = a − b

3 **N.MR.05.03:** Write mathematical statements involving division.

Identify the operation in a contextualized setting.

A correct

B multiplication

C addition

D subtraction

4 **N.MR.05.03:** Write mathematical statements involving division.

Identify the operation in a contextualized setting.

A multiplication

B addition

C correct

D subtraction

5 **N.FL.05.04:** Multiply a multi-digit number by a 2-digit number.

Given a multiplication sentence, identify the incorrect digit in the product.

A not the incorrect digit of product

B correct

C not the incorrect digit of product

D not the incorrect digit of product

6 **N.FL.05.04:** Multiply a multi-digit number by a 2-digit number.

Multiply the 3-digit number by the 2-digit number.

A added instead of multiplied

B multiplied first factor by 1/10 of second factor

C multiplied first factor by half of second factor

D correct

7 **N.UN.05.04:** Convert measurements within a given system.

Convert ounces to pounds.

A 32 ounces = 1 pound

B 24 ounces = 1 pound

C correct

D 32/3 ounces = 1 pound

8 **M.UN.05.04:** Convert measurements within a given system.

Convert hours and minutes to minutes.

A 1 hour = 10 minutes

B 1 hour = 30 minutes

C correct

D 1 hour = 100 minutes

9 **N.FL.05.14:** Add and subtract fractions with unlike denominators.

Add fractions with unlike denominators.

A added numerators, multiplied denominators

B correct numerator, $a/x + b/x = (a + b)/2x$

C added numerators and denominators

D correct

10 **N.FL.05.14:** Add and subtract fractions with unlike denominators.

Add fractions with unlike denominators.

A added numerators, multiplied denominators

B multiplied numerators, added denominators

C added numerators and denominators

D correct

11 **N.FL.05.18:** Write statements involving the addition and subtraction of fractions.

Identify the operation in a contextualized setting.

A divided

B multiplied

C correct

D subtracted

12 **N.FL.05.18:** Write statements involving the addition and subtraction of fractions.

Identify the operation in a contextualized setting.

A subtracted one subtrahend from another

B added subtrahends

C correct

D added one subtrahend to minuend

13 **N.MR.05.19:** Solve contextual problems that involve adding and subtracting fractions.

Subtract fractions in the same family, in context.

A correct

B multiplied numerators, multiplied denominators

C subtrahend, not difference

D subtracted numerators and denominators, simplified

14 **N.MR.05.19:** Solve contextual problems that involve adding and subtracting fractions.

Subtract fractions with the same denominator, in context.

A multiplied numerators and denominators

B multiplied numerators, added denominators

C added numerators

D correct

15 **M.PS.05.05:** Show relationships between areas of polygons.

Show the relationship between areas of quadrilaterals.

A incorrect relationship between areas of quadrilaterals

B incorrect relationship between areas of quadrilaterals

C incorrect relationship between areas of quadrilaterals

D correct

16 **M.PS.05.05:** Show relationships between areas of polygons.

Show the relationships between areas of different polygons.

A correct

B incorrect relationship between areas of polygons

C incorrect relationship between areas of polygons

D incorrect relationship between areas of polygons

17 **G.GS.05.02:** Measure angles with a protractor and classify.

Measure the angle with a protractor and classify.

A incorrect classification of angle

B correct

C incorrect classification of angle

D incorrect classification of angle

18 **G.GS.05.05:** Know straight angle and angles surrounding a point.

Know the measure of a straight angle.

A straight angle measures 360°

B straight angle measures 270°

C straight angle measures 200°

D correct

19 **G.GS.05.05:** Know straight angle and angles surrounding a point.

Know the measure of a straight angle.

A correct

B complementary angle of correct angle

C straight angle measures 270°

D straight angle measures 360°

20 **G.GS.05.02:** Measure angles with a protractor and classify.

Measure the angle with a protractor and classify.

A 5° too small

B correct

C 20° too large

D supplementary angle of correct angle

21 **N.MR.05.02:** Know division of whole numbers in the form a = bq + r.

List remainders when dividing a whole number by b.

A correct

B remainders are multiples of divisor

C 3 possible remainders, divisor

D 1 possible remainder, 3 multiples of divisor

22 **G.GS.05.04:** Find unknown angles in problems.

Identify the name of the vertical angle.

A incorrect angle

B correct

C incorrect angle

D incorrect angle

23 **G.GS.05.04:** Find unknown angles in problems.

Find the measure of the vertical angle.

A complementary angle

B correct

C twice the measure of the vertical angle

D supplementary angle

24 **N.MR.05.15:** Multiply a whole number by powers of 10; identify patterns.

Given the unit cost and number of units, find the total cost.

A multiplied by 1/100, not 1/10

B correct

C multiplied by 0.11

D multiplied by 1

25 **N.ME.05.12:** Multiply two unit fractions using an area model.

Find the product using an area model.

A factor

B factor

C ratio of intersection to number of marked squares

D correct

26 **N.MR.05.13:** Divide using fractions and whole numbers.

Divide the fraction by the whole number.

A correct

B 1/(whole), ignored fraction

C multiplied by whole, instead of divided

D reciprocal multiplied by whole, instead of divided

27 **N.MR.05.21:** Solve for the unknown in equations with fractions.

$a/b + x = c/d$

A correct

B subtracted original numerators, correct denominator

C subtracted numerators and denominators

D added addend to sum

28 **N.FL.05.05:** Solve problems involving the multiplication and division of whole numbers.

Multiply in context.

A divided

B subtracted

C incorrect multiplication

D correct

29 **N.FL.05.05:** Solve problems involving the multiplication and division of whole numbers.

Divide in context.

A correct

B divided incorrectly

C divided incorrectly

D subtracted

30 **N.MR.05.07:** Find the prime factorization of numbers; show it exponentially.

Find the prime factorization of a number; show it exponentially.

A factorization, but not prime factorization

B incorrect factorization, exponent on wrong base

C correct

D factorization, but not prime factorization

31 **N.MR.05.07:** Find the prime factorization of numbers; show it exponentially.

Find the prime factorization of a number; show it exponentially.

A correct

B correct bases, incorrect exponents

C factorization, but not prime factorization

D factorization, but not prime factorization

32 **N.FL.05.20:** Solve applied problems using fractions and decimals.

Solve the applied problem, in context of money, using the whole number and the fraction.

A incorrect product

B incorrect product

C correct

D factor

33 **N.FL.05.20:** Solve applied problems using fractions and decimals.

Solve the applied problem, in context of money, using decimals.

A truncated all decimals, then added

B rounded correctly with 2 of 3 decimals, then added

C correct

D rounded all decimals up, then added

34 **D.AN.05.03:** Given a set of data, find and interpret the mean and mode.

Calculate the mean of the data set.

A mode

B incorrect mean

C correct

D range

35 **D.AN.05.03:** Given a set of data, find and interpret the mean and mode.

Calculate the mode of the data set.

A minimum

B neither mean nor mode

C false median (middle number of unordered list)

D correct

36 **M.TE.05.06:** Know how to use the area formula of a triangle.

Given the formula, identify the properly labeled triangle.

A height incorrectly labeled

B base incorrectly labeled

C height incorrectly labeled

D correct

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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.

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37 **M.TE.05.06:** Know how to use the area formula of a triangle.

Given a triangle with all measurements, identify the expression for area.

A correct

B (1/2) × (h) × (non-base side length)

C (1/2) × (h) × (non-base side length)

D (1/2) × (b) × (non-base side length)

38 **M.TE.05.07:** Know how to use the area formula for a parallelogram.

Given the labeled parallelogram, calculate its area.

A A = b + h

B A = 2(b + h), false perimeter measure

C correct

D incorrect area

39 **M.TE.05.07:** Know how to use the area formula for a parallelogram.

Given the area and height of a parallelogram, find its length.

A correct

B length = length + height

C length = area – height

D length = area + height

40 **G.GS.05.06:** Know the interior angles of a triangle and quadrilateral.

Know the interior angles of a triangle to find the angle measure.

A interior angles of triangle sum to 150°

B correct

C interior angles of triangle sum to 210°

D interior angles of triangle sum to 270°

41 **G.GS.05.06:** Know the interior angles of a triangle and quadrilateral.

Know the interior angles of a quadrilateral sum to 360°.

A incorrect sum of interior angles of quadrilateral

B incorrect sum of interior angles of quadrilateral

C incorrect sum of interior angles of quadrilateral

D correct

42 **G.GS.05.07:** Find unknowns using the properties of triangles and quadrilaterals.

Find the measure of an angle of a quadrilateral, given the adjacent angle.

A measure of adjacent angle, $x = 360° - x$

B correct

C adjacent angles in all quadrilaterals are congruent

D measure of adjacent angle = measure of complementary angle

43 **G.GS.05.07:** Find unknowns using the properties of triangles and quadrilaterals.

Find the measure of an angle in the isosceles triangle.

A angle measures sum to more than 180°

B correct

C angle measures sum to less than 180°

D angle measures sum to less than 180°

44 **D.RE.05.02:** Construct line graphs from tables of data.

Construct a line graph from the table with months and temperatures.

A incorrect values, missing labels

B correct

C incorrect values

D correct values, missing labels

45 **N.FL.05.06:** Divide up to a 4-digit number by a 2-digit number.

Divide a 4-digit number by a 2-digit number.

A correct

B incorrect quotient

C incorrect quotient

D incorrect quotient

46 **N.ME.05.08:** Understand the relative magnitude of the base-10 system.

Convert tenths to wholes.

A incorrect by factor of 1000

B incorrect by factor of 100

C incorrect by factor of 10

D correct

47 **N.ME.05.09:** Understand percentages as parts out of 100.

Convert the fraction to a percentage.

A numerator = percentage

B correct

C denominator = percentage

D numerator + denominator = percentage

48 **N.ME.05.10:** Understand and show fractions as a statement of division.

Translate the division expression to a fraction.

A reciprocal

B correct

C division = subtraction, $a/b = a - b$

D $a \div b = b \div a$, $a \neq b$

49 **N.ME.05.11:** Compare two fractions using common denominators.

Given two fractions, find two equivalent fractions.

A a/b, $c/d = a/(b + d)$, $c/(b + d)$

B a/b, $c/d = (a + d)/(b + d)$, $(c + b)/(b + d)$

C a/b, $c/d = a/bd$, c/bd

D correct

50 **N.MR.05.17:** Multiply decimals up to 100ths by whole numbers.

Multiply whole number by a decimal in hundredths

A incorrect by factor of 100

B incorrect by factor of 10

C correct

D incorrect by factor of 1/10

51 **N.MR.05.22:** Express fractions and decimals as percentages.

Translate the fraction to a percentage.

A a/b = b0%

B correct

C a/b = ab%

D a/b = a0%

52 **N.ME.05.23:** Express ratios in the forms a to b, a:b, and a/b.

Given a ratio in context, determine the ratio as a fraction.

A correct

B $a/b = b/a$, $a \neq b$

C $a/b = a/(a + b)$, $a \neq b$

D $a/b = b/(a + b)$, $a \neq b$

53 **M.UN.05.01:** Know the equivalence of 1 liter, 1000 milliliters, and 1000 cubic centimeters.

Convert liters to milliliters.

A 1 liter = 50 mL

B 1 liter = 100 mL

C 1 liter = 500 mL

D correct

54 **M.UN.05.02:** Know the units of measure of volume.

Select the unit of measure of volume.

A weight

B correct

C area

D length

55 **M.UN.05.03:** Compare the relative sizes of cubic measures.

Identify the greatest volume using standard units.

A 3rd greatest volume, greatest measure

B smallest volume, 2nd greatest measure

C 2nd greatest volume, least measure

D correct

56 **M.PS.05.10:** Solve volume problems of rectangular prisms.

Given the length, width, and height, find the portion of volume.

A correct

B incorrect quotient

C incorrect quotient

D incorrect quotient

57 **G.TR.05.01:** Associate an angle with a certain amount of turning.

Determine the number of degrees that the arrow on the spinner moved.

A correct

B incorrect number of degrees

C incorrect number of degrees

D incorrect number of degrees

58 **G.GS.05.03:** Identify angles on a straight line and vertical angles.

Identify the pair of vertical angles.

A adjacent

B adjacent

C correct

D adjacent

59 **D.RE.05.01:** Read and interpret line graphs, and solve problems.

Determine the difference between two categories.

A incorrect difference

B correct

C subtrahend

D incorrect difference

60 **D.AN.05.04:** Solve multi-step problems involving means.

Given the mean, find the missing value in the table.

A correct

B mean

C incorrect mean

D 5 days = one week

3rd
4th
5th
6th
7th
8th

MICHIGAN Department of Education

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