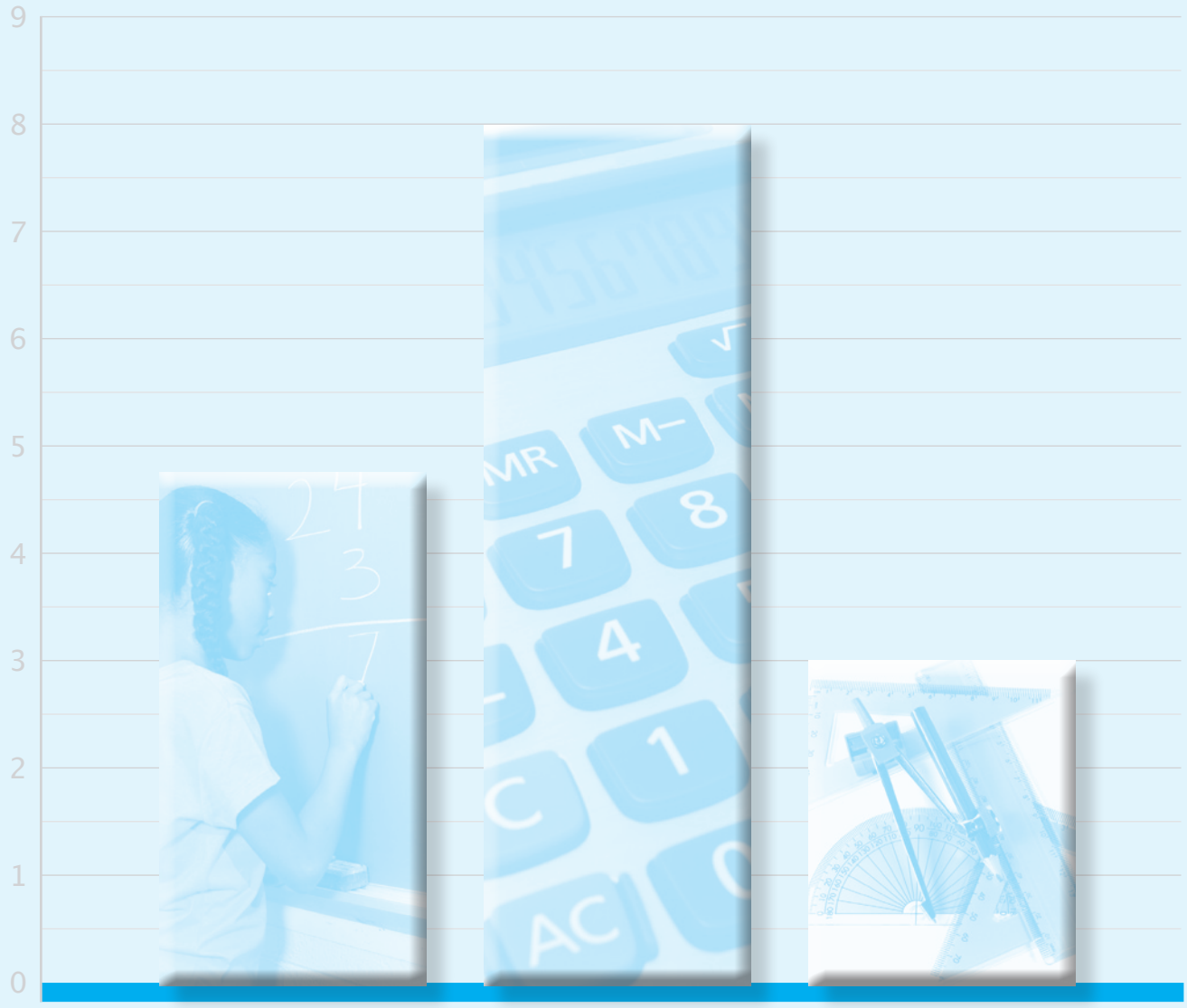
3rd
4th
5th
6th
7th
8th

Grade 7

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.06.01:** Understand the division of fractions as the inverse of multiplication.

Identify the equivalent expression to the given division expression.

A $a/b \div c/d = a/b \div d/c$

B $a/b \div c/d = b/a \div c/d$

C correct

D $a/b \div c/d = b/a \times d/c$

2 **N.FL.06.02:** Write a statement to represent dividing fractions.

Identify the division expression that corresponds to the given context.

A $a \div b/c = b/c \div a$

B $a \div b/c = b/c \times a$

C correct

D $a \div b/c = a - b/c$

3 **N.FL.06.02:** Write a statement to represent dividing fractions.

Identify the division expression that corresponds to the given context.

A $a \div b/c = a \times b/c$

B correct

C $a \div b/c = a + b/c$

D $a \div b/c = a - b/c$

4 **N.MR.06.01:** Understand the division of fractions as the inverse of multiplication.

Identify the multiplication expression that corresponds to the given division expression.

A correct

B $a/b \div c = a/b \times c$

C $a/b \div c = c \div a/b$

D $a/b \div c = c \div b/a$

5 **N.MR.06.03:** Solve for the unknown in equations.

$a/b = c \times \square$

A correct

B twice value of correct fraction

C added one to correct fraction

D reciprocal

6 **N.MR.06.03:** Solve for the unknown in equations.

$a/b \div x = c/d$

A $a/b \div x = c/d$ means $x = (c - d)/d$

B correct

C $a/b \div x = c/d$ means $x = (c - d)/(d - b)$

D reciprocal

7 **N.FL.06.04:** Multiply and divide any two fractions, including mixed numbers.

Proper fraction ÷ mixed number

A correct

B $a/b \div c/d = a/b \times c/d$

C $a/b \div C\ d/f = C\ ad/bf$

D incorrect quotient

8 **N.FL.06.04:** Multiply and divide any two fractions, including mixed numbers

Proper fraction × mixed number

A $a/b \times d/f = a/b \div d/f$

B correct

C $a/b \times C\ d/f = C\ ad/bf$

D $a/b \times C\ d/f = C\ (a/b + d/f)$

9 **N.FL.06.09:** Compute with integers; use a number line and chip models.

Identify the number line that models the addition of a negative integer to a whole number.

A correct

B $-x + y$, number line model shows $x - x + y$

C $-x + y$, number line model shows $-x + -y$

D $-x + y$, number line model shows $x + -x + -y$

10 **N.FL.06.09:** Compute with integers; use a number line and chip models.

Subtract the positive integer from the negative integer.

A correct

B $-x - y = -x + y$

C $-x - y = x - y$

D $-x - y = x + y$

11 **N.FL.06.12:** Calculate part of a number, given the percentage and number.

Calculate the percentage of the 2-digit number.

A xy% of ab = xy × 0.1 × ab (xy, ab are 2-digit numbers, not products)

B correct

C xy% of ab = xy × 10 × ab

D xy% of ab = xy × ab

12 **N.FL.06.12:** Calculate part of a number, given the percentage and number.

Calculate the percentage of the 2-digit number.

A xy% of ab = ab/xy

B correct

C xy% of ab = ab – xy

D xy% of ab = xy × ab

13 **N.FL.06.10:** Compute with positive rational numbers.

Subtract a mixed number from another mixed number.

A correct

B incorrect subtraction of mixed numbers

C incorrect subtraction of mixed numbers

D incorrect subtraction of mixed numbers

14 **N.FL.06.10:** Compute with positive rational numbers.

Find the value of a – (b + c).

A correct

B does not subtract decimal portion of b

C a – (b + c) = a – b

D a – (b + c) = a – b + c

15 **A.FO.06.03:** Use letters, with units, to represent quantities.

Identify the multiplication expression that corresponds to the given context.

A ax = a + x, a is positive decimal fraction

B ax = a – x

C correct

D ax = x/a

16 **A.FO.06.03:** Use letters, with units, to represent quantities.

Identify the subtraction expression that corresponds to the given context.

A ax – b = ax + b (a, b are integers)

B correct

C ax – b = (a)(b) – x

D ax – b = (a)(b) + x

17 **A.FO.06.04:** Distinguish between algebraic expression and equation.

Identify the equation.

A expression

B expression

C correct

D expression

18 **A.FO.06.14:** Distinguish between algebraic expression and equation.

Identify the equation.

A expression

B correct

C expression

D expression

19 **A.FO.06.11:** Relate simple linear equations to contexts; solve.

Solve for a variable in the linear equation that represents the context.

A correct

B abc = dfx; x = abc – df
(a, b, c, d, f are integers)

C abc = dfx; x = abc + df
(abc is 3-digit number)

D abc = dfx; x = abc × df

20 **A.FO.06.11:** Relate simple linear equations to contexts; solve.

Identify the multiplication expression that corresponds to the given context.

A added instead of multiplied

B subtracted instead of multiplied

C correct

D divided instead of multiplied

21 **A.FO.06.12:** Add and subtract numbers on both sides of equations.

Identify the equation that results from adding the same number to both sides of the given equation.

A added constant to variable, added constant to one side

B added constant to variable

C correct

D added constant to one side of equation

22 **A.FO.06.12:** Add and subtract numbers on both sides of equations.

Identify the equation that results from subtracting the same number from both sides of the given equation.

A correct

B subtracted from one side of equation

C subtracted constant from variable and from other side

D subtracted constant from variable

23 **A.FO.06.13:** Multiply and divide numbers on both sides of equations.

Solve the linear equation for x.

A divided sides of equations by additive inverses

B correct

C ax = a + x (a is integer)

D multiplied sides of equations by additive inverses

24 **A.FO.06.13:** Multiply and divide numbers on both sides of equations.

Identify the step to solve ax = b.

A solve ax = b by adding a to ax and to b

B solve ax = b by subtracting a from ax and from b

C solve ax = b by multiplying ax by a and b by a

D correct

25 **M.PS.06.02:** Draw patterns for rectangular prisms.

Identify the net of the cube.

A 6 faces, but not a net of cube

B correct

C not a net of a cube, 5 faces

D not a net of a cube, 5 faces

26 **M.PS.06.02:** Draw patterns for rectangular prisms.

Identify the net of the rectangular prism.

A not net of prism

B not net of prism

C not net of rectangular prism

D correct

27 **A.RP.06.02:** Plot ordered pairs of integers.

Locate the point, given the coordinate pair.

A correct

B (-y, -x)

C (x, -y)

D (-y, -x)

28 **N.ME.06.11:** Find equivalent ratios by scaling up or down.

Use multiplication to scale up, given the context.

A added instead of multiplied

B incorrect multiplication

C incorrect multiplication

D correct

29 **A.PA.06.01:** Solve applied problems involving rates.

Find the distance, given the rate and time.

A omitted fractional portion of mixed number in product

B used incorrect whole number of mixed number in product

C correct

D rounded mixed number up, then multiplied

30 **N.FL.06.14:** Estimate calculations involving rational numbers.

Divide (or repeatedly subtract) the mixed number into the whole number, in context.

A underestimate

B correct

C incorrect rounding

D overestimate

31 **N.FL.06.14:** Estimate calculations involving rational numbers.

Add times given in seconds.

A underestimate

B underestimate

C correct

D overestimate

32 **N.FL.06.15:** Solve applied problems with appropriate decimals.

Calculate the cost of items and apply the discount.

A price of one of each item, not two of each item

B price of two of one item plus one of other item

C correct

D correct items, but did not apply discount

33 **N.FL.06.15:** Solve applied problems with appropriate decimals.

Divide in context of area.

A incorrect divisor

B correct

C subtracted instead of divided

D added, then rounded instead of divided

34 **N.ME.06.11:** Find equivalent ratios by scaling up or down.

Use the given ratio to find the total.

A sum of two ratio values

B used incorrect ratio

C correct

D used incorrect ratio

35 **A.PA.06.01:** Solve applied problems involving rates.

Find the distance given the rate and time.

A subtracted incorrectly instead of multiplying

B added instead of multiplied

C multiplied mixed number incorrectly

D correct

36 **A.FO.06.06:** Represent words using algebraic equations.

Translate words into an algebraic expression.

A $ax + by = a + b + x + y$ (a, b are decimal fractions)

B $ax + by = x + y$

C correct

D $ax + by = ax \times by$

37 **A.FO.06.06:** Represent words using algebraic equations.

Determine the contextual meaning of the coefficient in an equation.

A subtracted coefficients

B incorrect coefficient

C correct

D added coefficients

38 **M.UN.06.01:** Convert measurements within a single system.

Covert feet into yards.

A feet/12 = yards

B correct

C feet = yards

D feet × 3 = yards

39 G.TR.06.03: Understand rigid motions and relate them to congruence.

Translate the point on a coordinate grid.

A down a units, left b units = right a units, down b units

B down a units, left b units = right a units, up b units

C down a units, left b units = down a units, right b units

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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40 **M.TE.06.03:** Compute the volume and surface area of rectangular prisms.

Calculate the surface area of the rectangular prism, given the graphic with side lengths.

A SA = sum of three different faces, i.e., half of correct SA

B SA = 3 × area of one face

C correct

D SA = length × width × height

41 **D.PR.06.02:** Compute probabilities of events from experiments.

Compute probability using the spinner.

A probability of one section

B complement

C incorrect probability

D correct

42 **D.PR.06.01:** Express probabilities as fractions, decimals, or percents.

Express probability as a fraction in the context of choosing cards.

A complement

B ratio of event occurring to event not occurring

C correct

D ratio of event not occurring to event occurring

43 **N.ME.06.05:** Order rational numbers and place them on the number line.

Determine the range on a number line where the given rational number is located.

A values in range are less than value of point

B correct

C values in range are greater than value of point

D values in range are greater than value of point

44 **N.ME.06.16:** Use integer exponents and scientific notation.

Translate the number in standard form to scientific notation.

A incorrect by factor of 10

B correct

C incorrect by factor of 1/10

D incorrect by factor of 1/100

45 **N.ME.06.06:** Show rationals as fractions or terminating decimals.

Translate the fraction to a decimal.

A correct

B a/bc = (0.a)/2

C a/bc = 0.a

D a/bc = 0.abc

46 **N.ME.06.07:** Understand fractions as a quotient of two integers.

Identify the equivalent expression, given a rational number.

A a/b = a + b

B a/b = a × b

C a/b = a – b

D correct

47 **N.MR.06.08:** Understand subtraction and division as the inverse of addition and multiplication.

Identify the equivalent expression, given the subtraction expression.

A correct

B a – b = a – (-b)

C a – b = -a + b

D a – b = -a – b

48 **N.MR.06.13:** Solve contextual problems involving percentages.

Calculate the percentage of a number in context.

A incorrect percentage

B percentage = count

C correct

D incorrect percentage

49 **N.ME.06.17:** Locate negative rational numbers on a number line.

Identify the number that is same distance from zero as the given number.

A number with same distance from 0 to -x = -2x

B number with same distance from 0 to -x = -x/2

C number with same distance from 0 to -x = x/2

D correct

50 **N.ME.06.18:** Understand that rationals are quotients of integers.

Identify the quotient that is equivalent to the given integer.

A additive inverse

B correct

C additive inverse of reciprocal

D reciprocal

51 **N.ME.06.19:** Understand that zero is neither negative nor positive.

Identify the type of number that results by multiplying a × 0.

A a × 0 is positive

B a × 0 is negative

C correct

D a × 0 is not integer

52 **N.ME.06.20:** Know the absolute value of a number.

Identify the expression to represent the distance from -a to 0.

A distance from -a to 0 is |-a × 0|

B correct

C distance from -a to 0 is -a – 0

D distance from -a to 0 is -a

53 **G.GS.06.01:** Understand and apply properties of lines and angles.

Identify the pair of complementary angles.

A right angle and acute angle are complementary angles

B correct

C obtuse angle and acute angle are complementary angles

D supplementary angles are complementary angles

54 **G.GS.06.02:** Understand congruence for polygons.

Find the measurement of the angle of a triangle, given two measurements of a congruent triangle.

A angle does not correspond

B angle does not correspond

C correct

D interior angles of triangle sum to 190°

55 **G.TR.06.03:** Understand rigid motions and relate them to congruence.

Translate the point on a coordinate grid.

A (y, x)

B went up instead of down

C went right instead of down

D correct

56 **G.TR.06.04:** Use simple compositions of rigid transformations.

Translate, then reflect the point on the coordinate grid.

A two incorrect transformations

B applied first transformation, but not second

C applied first transformation, reflected over wrong axis

D correct

57 **A.FO.06.05:** Use conventions for writing algebraic expressions.

Translate words into an algebraic expression.

A a times x = a (for a > 0)

B multiplied instead of added

C correct

D a times x = a + x

58 **A.FO.06.07:** Simplify linear expressions and evaluate using values.

Simplify the linear expression.

A combined unlike terms

B added y values instead of subtracted

C correct

D combined unlike terms

59 **A.RP.06.08:** Understand relationships between quantities can be shown by graphs and tables.

Translate the table to an equation.

A y = ax in table means x = ay

B correct

C y = ax in table means x + y = a

D y = ax in table means x × y = a

60 **A.PA.06.09:** Solve problems involving linear functions.

Translate the words into a graph.

A correct

B incorrect slope

C incorrect slope

D incorrect slope

61 **A.RP.06.10:** Show relationships using equations, tables, and graphs.

Translate the table into an equation.

A correct

B y = ax in table means x = ay

C y = ax in table means y = a + x

D y = ax in table means x = a + y

62 **A.FO.06.14:** Solve equations of the form ax + b = c.

Solve the linear equation.

A divided by incorrect coefficient

B correct

C added constant to both sides instead of subtracting

D added constant, then multiplied by coefficient

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

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