



RELEASED ITEMS

**MATHEMATICS
GRADE 5**

Fall 2008

**MICHIGAN STATE BOARD OF EDUCATION
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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 trading 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**.

You will have at least 55 minutes to finish Part 1 of this test. You will be given additional time if necessary.

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.

1 List factors & multiples

- A multiple
- B not a factor
- C correct
- D not a factor

2 Which number below is a multiple of 4?

- A 1
- B 2
- C 14
- D 16

3 Use factors & multiples to compose/decompose numbers

- A not a multiple
- B correct
- C not a multiple
- D factor

- 4 What number goes in the blank to make the second number sentence below true?

$$100 = 4 \times 25$$

$$100 = 4 \times \underline{\quad} \times 5$$

- A** 4
- B** 5
- C** 25
- D** 100
- 5 Solve x problems using the distributive property
- A** correct
- B** not distributive property
- C** not distributive property
- D** not distributive property
- 6 Which of the following is equivalent to 2×54 ?
- A** $2 \times 50 \times 4$
- B** $(2 \times 50) + (2 \times 4)$
- C** $2 \times 5 \times 4$
- D** $(2 \times 50) + 4$

7 Divide whole numbers by 1-digit numbers and by 10

- A incorrect quotient, incorrect remainder
- B correct
- C incorrect quotient, correct remainder
- D incorrect quotient, incorrect remainder

8 Divide $3,252 \div 7$

- A 463 R11
- B 464
- C 464 R4
- D 465 R3

9 Find value of unknowns in equations

- A subtracted instead of divided
- B incorrect division
- C correct
- D incorrect division

10 What value of n makes this number sentence true?

$$360 \div n = 60$$

- A 3
- B 6
- C 10
- D 60

11 Translate between fractions & decimals

- A incorrect fraction
- B correct
- C incorrect fraction
- D reciprocal

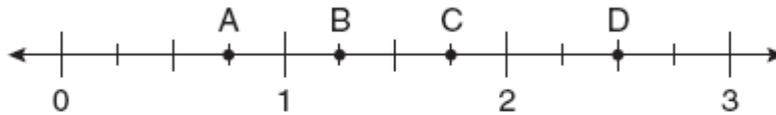
12 Which of the following is equivalent to $\frac{5}{10}$?

- A 0.5
- B 0.51
- C 5.10
- D 510.0

13 Locate fractions w/denominators ≤ 12 on number line

- A different labeled point on number line
- B incorrect point on number line
- C correct
- D different labeled point on number line

14 Which point on the number line below best represents the location of $\frac{5}{4}$?



- A A
- B B
- C C
- D D

15 Know & use approximation appropriately

- A overestimate
- B overestimate
- C overestimate
- D correct

16 Which of the following is closest to 8×0.92 ?

A 8,000

B 800

C 80

D 8

17 Measure using common tools & appropriate units

A under by 0.25 inch

B correct

C over by 0.25 inch

D over by 1 inch

18 Which unit can be used to record the height of your teacher?

A foot

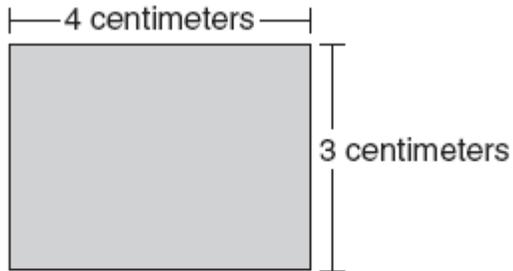
B milliliter

C gram

D pound

- 19** Measure & compare integer temperatures in degrees
- A** neither coolest nor warmest temperature
 - B** warmest temperature
 - C** correct
 - D** least absolute value
- 20** Which list below shows the temperatures in order from coldest to hottest?
- A** 0°C , -10°C , 10°C , 100°C
 - B** -10°C , 0°C , 10°C , 100°C
 - C** 100°C , 10°C , 0°C , -10°C
 - D** -10°C , 10°C , 0°C , 100°C
- 21** Know and understand formulas for P/A of square, rect
- A** length of one side
 - B** length of two sides
 - C** correct
 - D** measure of area

22 What is the area of the rectangle shown below?

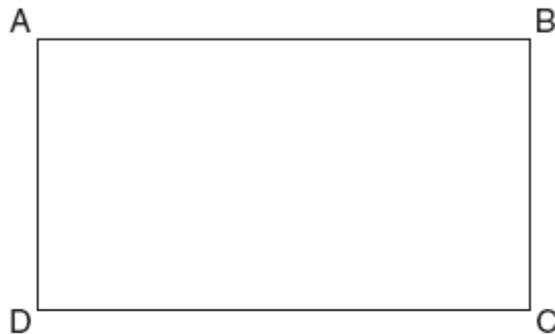


- A 7 square centimeters
 - B 12 square centimeters
 - C 14 square centimeters
 - D 24 square centimeters
- 23 Find length of rectangle given width and A or P
- A correct
 - B incorrect length
 - C perimeter
 - D area measure minus length of one side
- 24 What is the length of a rectangle with a width of 4 centimeters and a perimeter of 28 centimeters?
- A 7 centimeters
 - B 10 centimeters
 - C 20 centimeters
 - D 24 centimeters

25 Identify basic geometric shapes and solve problems

- A correct
- B different type of triangle
- C different type of triangle
- D different type of triangle

26 What kind of triangles will result if Dale draws a line segment connecting points A and C on the rectangle shown below?

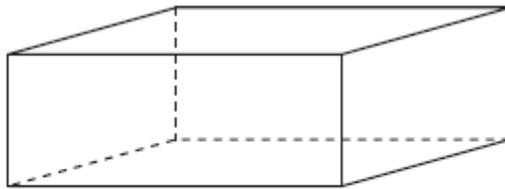


- A isosceles
- B right
- C equilateral
- D obtuse

27 Identify attributes of 3-D solids

- A incorrect attribute
- B incorrect attribute
- C incorrect attribute
- D correct

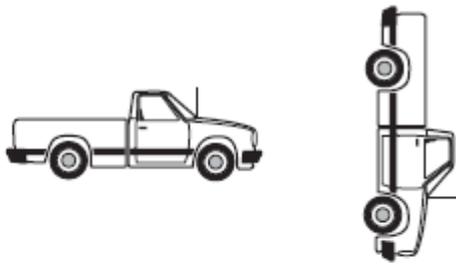
28 What is the total number of vertices in the rectangular prism shown below?



- A 2
 - B 4
 - C 6
 - D 8
- 29 Recognize transformations of a 2-D object
- A correct
 - B rotation
 - C dilation
 - D rotation

30 Which of the following appears to show how the picture of the truck will look after a single slide?

A



B



C



D



31 Which shows twenty-three thousand, sixty-two in standard form?

- A** 2,362
- B** 20,362
- C** 23,026
- D** 23,062

32 Gene is buying a car that costs \$27,650. What is the place value of the 7 in the price of this car?

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

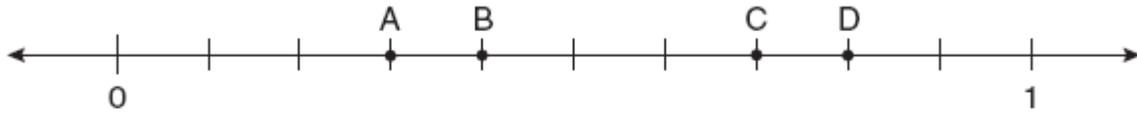
33 Which of the following is a prime number?

- A** 21
- B** 33
- C** 49
- D** 53

34 Multiply $6,952 \times 3$

- A** 10,285
- B** 18,756
- C** 20,856
- D** 24,856

35 Which point appears to be located at 0.8 on the number line?



- A A
- B B
- C C
- D D

36 Jane had a bag of 12 marbles. She gave 8 of the marbles to Thomas. Which fractional part of the marbles did Jane have left?

- A $\frac{8}{12}$
- B $\frac{4}{8}$
- C $\frac{4}{12}$
- D $\frac{1}{4}$

37 What number goes in the box to make the statement below true?

$$\frac{1}{2} = \frac{\square}{8}$$

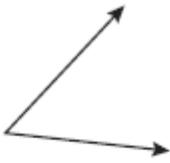
- A 8
- B 6
- C 4
- D 2

38 Which shows the fractions in order from least to greatest?

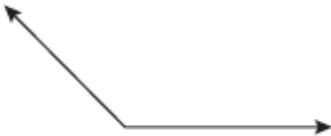
- A $\frac{1}{4}$, $\frac{1}{3}$, $\frac{1}{2}$
- B $\frac{1}{2}$, $\frac{1}{3}$, $\frac{1}{4}$
- C $\frac{1}{3}$, $\frac{1}{4}$, $\frac{1}{2}$
- D $\frac{1}{3}$, $\frac{1}{2}$, $\frac{1}{4}$

39 Which of the following best represents an obtuse angle?

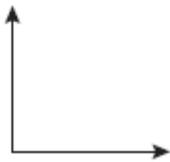
A



B



C



D



40 Which of the following appears to have *more* than one line of symmetry?

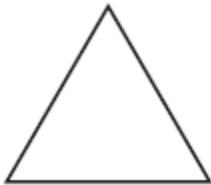
A



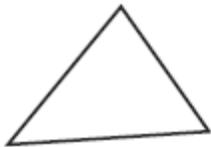
B



C



D



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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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 trading 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**.

You will have at least 30 minutes to finish Part 2 of this test. You will be given additional time if needed.

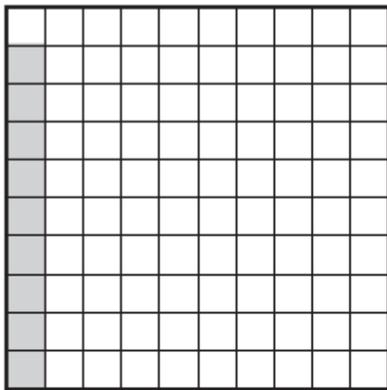
Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page.

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41 Know decimals up to two places & relate to money

- A incorrect value
- B correct
- C place value error
- D place value error

42 The square grid below represents one whole.



Which best represents the shaded part of the grid?

- A 9.0
- B 0.9
- C 0.09
- D 0.009

- 43** Give answers to a reasonable degree of precision
- A** incorrect weight
 - B** incorrect weight
 - C** correct
 - D** incorrect weight
- 44** Which of the following is most likely the high temperature on a typical summer day in Lansing, Michigan?
- A** 130°F
 - B** 85°F
 - C** 49°F
 - D** 32°F
- 45** Order a given set of data, find the median, range
- A** middle number
 - B** correct
 - C** range
 - D** maximum

46 What is the range of the data set below?

2, 1, 7, 3, 5, 2, 9, 7, 10, 4, 2, 10

A 2

B 8

C 9

D 10

47 Solve problems using data tables, bar graphs

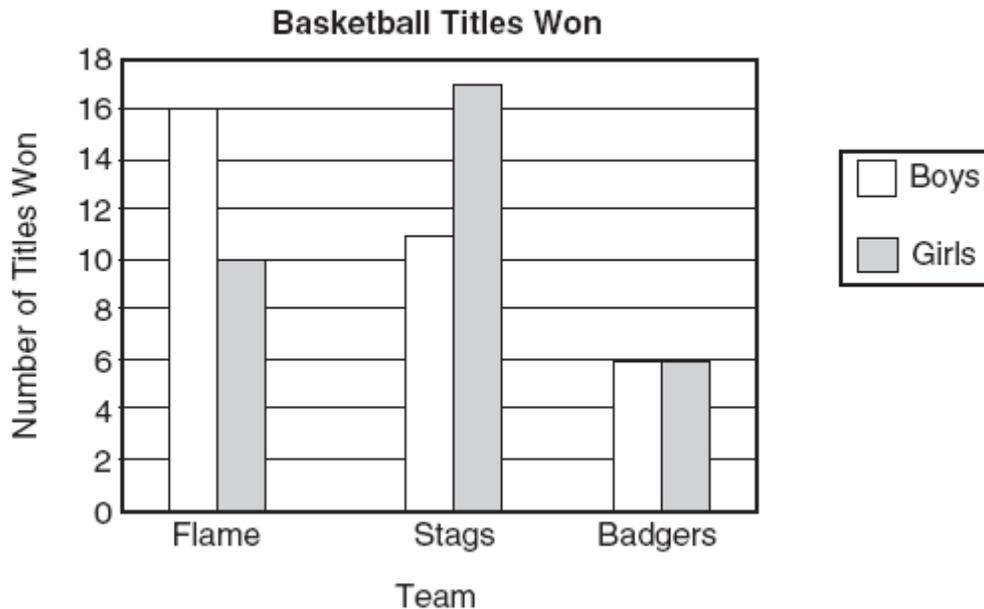
A incorrect value

B correct

C incorrect value

D incorrect value

- 48 The graph below shows the number of basketball titles won by the boys' teams and the girls' teams for three different school teams.



Based on the data in the graph, which statement is true?

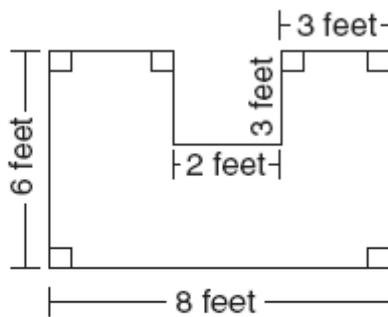
- A The Flame teams together have won the greatest total number of basketball titles.
- B The girls' Stags team has won exactly twice as many titles as the Badgers boys' and girls' teams together.
- C The girls' Flame team has won more titles than the girls' Stags.
- D The Stags teams together have won the greatest total number of basketball titles.

49 Which of the following is equivalent to 180 minutes?

(1 hour = 60 minutes)

- A 1 hour
- B 3 hours
- C 4 hours
- D 6 hours

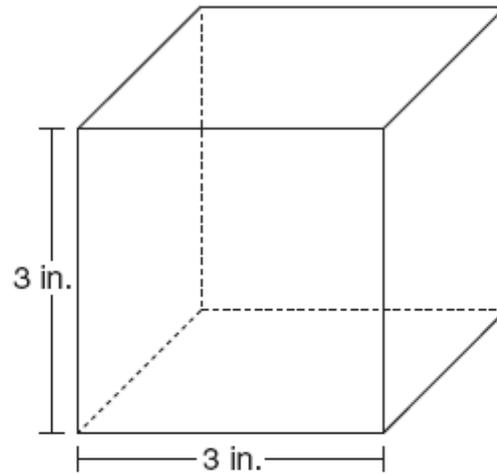
50 Some students want to put lights on a wire around the perimeter of their school garden.



What is the least amount of wire needed to go around the perimeter of the garden?

- A 48 feet
- B 34 feet
- C 26 feet
- D 17 feet

- 51 Rasheed has a wooden block in the shape of a cube as pictured below. He plans to paint the surface of the cube.



What is the surface area of the cube?

- A** 6 sq in.
B 12 sq in.
C 27 sq in.
D 54 sq in.
- 52 Add $2.6 + 1.59$
- A** 4.19
B 3.65
C 2.759
D 1.85

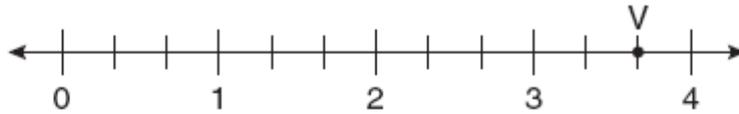
53 Multiply 3×2.45

- A 73.50
- B 7.35
- C 0.735
- D 0.0735

54 Which number is equivalent to $\frac{8}{10}$?

- A 0.8
- B 0.08
- C 0.88
- D 8.0

- 55 Which of the following best represents the location of point V?



- A $\frac{10}{3}$
- B $\frac{10}{4}$
- C $\frac{11}{4}$
- D $\frac{11}{3}$
- 56 If the number sentence below is true, which of the following is also true?

$$5,760 \div 24 = \square$$

- A $24 \times \square = 5,760$
- B $5,760 - 24 = \square$
- C $\square \times 5,760 = 24$
- D $5,760 + 24 = \square$

57 Add $\frac{1}{2} + \frac{3}{8}$

A $\frac{7}{8}$

B $\frac{6}{8}$

C $\frac{4}{10}$

D $\frac{4}{16}$

58 Todd used the cheeses listed below to make a pizza.

$\frac{1}{4}$ cup pepper jack

$\frac{1}{4}$ cup cheddar

$\frac{3}{4}$ cup mozzarella

What was the total amount of cheese Todd used to make the pizza?

A $\frac{5}{12}$ cup

B $1\frac{1}{4}$ cups

C $1\frac{3}{4}$ cups

D $1\frac{5}{8}$ cups

59 What value of n makes the equation below true?

$$\frac{4}{8} + n = \frac{6}{8}$$

A $\frac{2}{8}$

B $\frac{10}{8}$

C $\frac{2}{0}$

D $\frac{10}{16}$

60 Which of the following has the same value as $5 \times \frac{1}{2}$?

A $\frac{1}{2} + 5$

B $\frac{1}{2} + \frac{1}{5}$

C $\frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2} \times \frac{1}{2}$

D $\frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$

- 61 At the theater a box of popcorn costs \$2.99 and a drink costs \$1.79 including tax. Which represents the total cost of the popcorn and drink?
- A $\$2.99 + \1.79
 - B $\$2.99 - \1.79
 - C $\$2.99 \times \1.79
 - D $\$2.99 \div \1.79

Scoring Key: Part 1

Item No.	Correct Answer	GLCE	Type	Description
1	C	N.ME.04.05	Core	List factors & multiples
2	D	N.ME.04.05	Core	List factors & multiples
3	B	N.MR.04.07	Core	Use factors & multiples to compose/decompose numbers
4	B	N.MR.04.07	Core	Use factors & multiples to compose/decompose numbers
5	A	N.ME.04.09	Core	Solve x problems using the distributive property
6	B	N.ME.04.09	Core	Solve x problems using the distributive property
7	B	N.FL.04.11	Core	Divide whole numbers by 1-digit numbers and by 10
8	C	N.FL.04.11	Core	Divide whole numbers by 1-digit numbers and by 10
9	C	N.FL.04.12	Core	Find value of unknowns in equations
10	B	N.FL.04.12	Core	Find value of unknowns in equations
11	B	N.MR.04.19	Core	Translate between fractions & decimals
12	A	N.MR.04.19	Core	Translate between fractions & decimals
13	C	N.MR.04.22	Core	Locate fractions w/denominators ≤ 12 on number line
14	B	N.MR.04.22	Core	Locate fractions w/denominators ≤ 12 on number line
15	D	N.FL.04.35	Core	Know & use approximation appropriately
16	D	N.FL.04.35	Core	Know & use approximation appropriately
17	B	M.UN.04.01	Core	Measure using common tools & appropriate units
18	A	M.UN.04.01	Core	Measure using common tools & appropriate units
19	C	M.UN.04.03	Core	Measure & compare integer temperatures in degrees
20	B	M.UN.04.03	Core	Measure & compare integer temperatures in degrees
21	C	M.TE.04.06	Core	Know and understand formulas for P/A of square, rect
22	B	M.TE.04.06	Core	Know and understand formulas for P/A of square, rect
23	A	M.TE.04.07	Core	Find length of rectangle given width and A or P
24	B	M.TE.04.07	Core	Find length of rectangle given width and A or P
25	A	G.GS.04.02	Core	Identify basic geometric shapes and solve problems

Scoring Key: Part 1 (Continued)

Item No.	Correct Answer	GLCE	Type	Description
26	B	G.GS.04.02	Core	Identify basic geometric shapes and solve problems
27	D	G.SR.04.03	Core	Identify attributes of 3-D solids
28	D	G.SR.04.03	Core	Identify attributes of 3-D solids
29	A	G.TR.04.05	Core	Recognize transformations of a 2-D object
30	D	G.TR.04.05	Core	Recognize transformations of a 2-D object
31	D	N.ME.04.01	Extended	Read, write, compare & order numbers to 1,000,000
32	C	N.ME.04.03	Extended	Know size & place value of numbers to 1,000,000
33	D	N.MR.04.06	Extended	Know prime numbers
34	C	N.FL.04.10	Extended	Multiply whole numbers & use distributive property
35	D	N.ME.04.17	Extended	Locate tenths and hundredths on a number line
36	C	N.ME.04.20	Extended	Understand fractions as parts of a set of objects
37	C	N.MR.04.23	Extended	Understand relationships within fraction families
38	A	N.MR.04.26	Extended	Compare and order up to three fractions
39	B	M.TE.04.10	Extended	Know right angles & compare angles to right angles
40	C	G.TR.04.04	Extended	Recognize plane figures that have line symmetry

Scoring Key: Part 2

Item No.	Correct Answer	GLCE	Type	Description
41	B	N.ME.04.15	Core	Know decimals up to two places & relate to money
42	C	N.ME.04.15	Core	Know decimals up to two places & relate to money
43	C	M.PS.04.02	Core	Give answers to a reasonable degree of precision
44	B	M.PS.04.02	Core	Give answers to a reasonable degree of precision
45	B	D.RE.04.02	Core	Order a given set of data, find the median, range
46	C	D.RE.04.02	Core	Order a given set of data, find the median, range
47	B	D.RE.04.03	Core	Solve problems using data tables, bar graphs
48	D	D.RE.04.03	Core	Solve problems using data tables, bar graphs
49	B	M.TE.04.05	Extended	Convert units of measure within a system
50	B	M.PS.04.09	Future	Solve problems about P/A of rects in compound shapes
51	D	M.PS.04.11	Future	Solve contextual problems about surface area
52	A	N.FL.04.32	Future	Add and subtract decimals through hundredths
53	B	N.FL.04.33	Future	\times and \div decimals up to two decimal places
54	A	N.ME.04.16	Future	Know & identify terminating decimals
55	D	N.ME.04.24	Future	Understand improper fractions, locate on # line
56	A	N.MR.04.13	Future	Use \times , \div to simplify computations & check results
57	A	N.MR.04.27	Future	Add and subtract common fractions less than 1
58	B	N.MR.04.28	Future	Solve fraction problems involving sums & differences
59	A	N.MR.04.29	Future	Find value of unknown in equations with fractions
60	D	N.MR.04.30	Future	\times fractions using repeated $+$, area or array models
61	A	N.MR.04.31	Future	Solve problems by adding & subtracting decimals