Michigan Educational Assessment Program

RELEASED ITEMS

MATHEMATICS
GRADE 4

Fall 2007

MICHIGAN STATE BOARD OF EDUCATION
STATEMENT OF ASSURANCE OF COMPLIANCE WITH FEDERAL LAW

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PART 1

DIRECTIONS

This test has three parts. You may **NOT** use a calculator on the first part. You may use open space in this test booklet for scratch paper. No additional sheets may be used.

There are two types of items on this test: multiple-choice and open-ended.

1. Multiple-choice items will require you to choose the best answer from among the answer choices. For these items, 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 an item, be sure to mark the answer to the next item in the correct place in your **Answer Document**.

2. An open-ended item will be found in your test booklet and require you to write, explain, or show your work. For this item show all of your work neatly and clearly in the space provided in your **Answer Document** using a No. 2 pencil.

Sample Multiple-Choice Item:

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

Sample Open-Ended Item:

The Lopez children went to the movies. They wanted to buy a tub of popcorn that cost $1.35. They counted their money and had the following:

- Maria had 2 quarters.
- Carlos had 40 cents in dimes.
- Luis had the same number of nickels as Carlos had dimes.
- Ana had 2 dimes and 2 nickels.

Did the Lopez children have enough money to buy the popcorn? Explain how you arrived at your answer. Show all of your work.

$	.50	Maria
	.40	Carlos
	.20	Luis
	.20	Ana
+	.10	Ana
$	1.40	

Yes. They had 5 cents more than they needed.

For this sample item you would answer yes and explain that the Lopez children had 5 cents more than they needed. Remember to show your work.

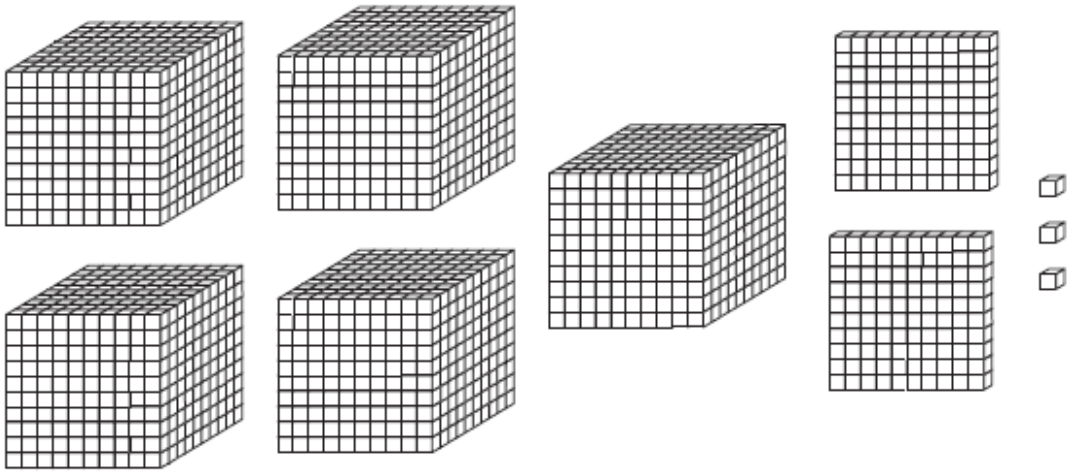
You will have at least 30 minutes to finish Part 1 of this test. You will be given additional time if necessary.

1. Once you have reached the word **STOP** in your test booklet, do **NOT** go on to the next page.
2. If you finish early, you may check your work in Part 1 of the test **ONLY**. Do **NOT** look at items in other parts of the test.

If you do not understand any of these directions, please raise your hand.

1 Each ◻ in the model below represents 1.

What number is represented by the model shown below?



A 523

B 900

C 5,203

D 5,230

2 Read and write numbers to 10,000

A place value error

B correct

C place value error

D place value error

3 What is the correct word form of 2,876?

A Twenty-eight, seventy-six

B Two hundred, eighty-seven six

C Two thousand, eight hundred six

D Two thousand, eight hundred seventy-six

4 Identify place value of digit in a number

A place value error

B place value error

C place value error

D correct

5 Which is another way to write 6,726?

A 6 hundreds, 7 thousands, 2 tens, and 6 ones

B 7 hundreds, 6 hundreds, 2 tens, and 6 ones

C 6 thousands, 7 hundreds, 2 tens, and 6 ones

D 6 thousands, 2 hundreds, 7 tens, and 6 ones

6 Identify place value of digit in a number

A place value error, used face value

B place value error

C correct

D place value error

7 Subtract $\begin{array}{r} 82 \\ -\,47 \\ \hline \end{array}$

A 25

B 35

C 45

D 55

8 Add and subtract thru 999 w/regrouping, 9,999 w/o

A subtracted, instead of added

B subtracted incorrectly, instead of added

C correct

D place value error in 100s place

9 Add 26 + 19

A 35

B 44

C 45

D 47

10 Estimate sum / difference of two 3-digit numbers

A overestimated

B overestimated

C correct

D underestimated

11 Which is *closest* to the value of 326 + 179?

A 500

B 400

C 300

D 200

12 Estimate sum / difference of two 3-digit numbers

A underestimated

B correct

C added incorrectly instead of subtracted

D added instead of subtracted

13 Which of the following is in the same fact family as $28 \div 7 = 4$?

A $28 + 7 = 35$

B $28 \div 2 = 14$

C $7 \times 4 = 28$

D $7 \times 28 = 196$

14 Use x and ÷ to show the inverse relationship

A addition fact

B multiplication fact from different family

C subtraction fact

D correct

15 Which number can be used to make both of the number sentences below true?

$4 \times \_\_\_ = 12$ $12 \div \_\_\_ = 4$

A 48

B 16

C 8

D 3

16 Find products to 10 X 10 and related quotients

A greater than product

B correct

C less than product

D less than product

17 Divide $48 \div 6$

A 288

B 54

C 42

D 8

18 Find products to 10 X 10 and related quotients

A less than quotient

B less than quotient

C less than quotient

D correct

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 sheets may be used.

If you finish early, you may check your work for Part 2 **ONLY**.

Do **NOT** look at items in other parts of this test.

You will have at least 50 minutes to finish Part 2 of this test.

19 John has 15 balloons. He will share the balloons equally with 2 friends. Which of the following can be used to determine the number of balloons each of them should receive?

A $15 + 3 = ?$

B $15 \div 3 = ?$

C $15 \times 3 = ?$

D $15 - 3 = ?$

20 Recognize multiplication and division situations

A subtraction

B addition

C multiplication

D correct

21 Tina bought 3 boxes of crayons. Each box had 6 crayons. Which of the following can be used to determine the total number of crayons she bought?

A $3 + 6 = ?$

B $3 - 6 = ?$

C $3 \div 6 = ?$

D $3 \times 6 = ?$

22 Understand meaning & terminology of fractions

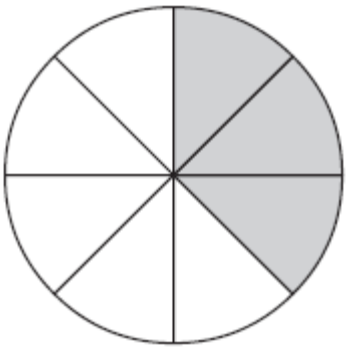
A correct number of shaded regions, total incorrect

B incorrect number of shaded regions, total correct

C correct

D incorrect number of shaded regions, incorrect total

23 Each section of the circle below is the same size. What fractional part of the circle is shaded?



A $\frac{3}{5}$

B $\frac{5}{8}$

C $\frac{8}{3}$

D $\frac{3}{8}$

24 Understand meaning & terminology of fractions

A ratio of shaded to non-shaded

B ratio of non-shaded to shaded

C fractional part that is not shaded

D correct

25 The clocks below show the time Maggie left for school and the time she returned home.

Left for School

Returned Home

Which *best* represents the amount of time Maggie was away from home that day?

A 9 hours and 5 minutes

B 8 hours and 50 minutes

C 8 hours and 1 minute

D 8 hours and 5 minutes

26 Measure in mixed units within measurement system

A addition error in ones place

B correct

C addition error in tens and ones place

D total instead of difference

27 The clocks below show the times the winter festival parade began and ended.

Began

Ended

Which of the following *best* represents the amount of time the parade lasted?

A 1 hour 10 minutes

B 1 hour 40 minutes

C 2 hours 4 minutes

D 2 hours 40 minutes

28 Know benchmark temperatures & compare cooler, warmer

A incorrect benchmark, incorrect scale

B incorrect benchmark, correct scale

C correct benchmark, incorrect scale

D correct

29 Which temperature is above the boiling point of water?

A 220°F

B 210°F

C 180°F

D 150°F

30 Know benchmark temperatures & compare cooler, warmer

A correct

B less than benchmark temperature

C less than benchmark temperature

D less than benchmark temperature

31 Subtract $5.25 − $2.35

A $7.60

B $3.90

C $3.10

D $2.90

32 Add and subtract money in dollars and cents

A addition error in dollars place

B correct

C addition error in tenths place

D addition error in tenths place

33 Subtract $20.00 − $12.25

A $ 7.75

B $ 8.25

C $ 8.75

D $32.25

34 Identify, describe, classify familiar 3-D solids

A correct

B incorrect 3-D solid

C incorrect 3-D solid

D incorrect 3-D solid

35 Which of the following objects in John's classroom is the *best* example of a rectangular prism?

A a piece of chalk

B a tissue box

C a paper clip

D a glue stick

36 Identify, describe, classify familiar 3-D solids

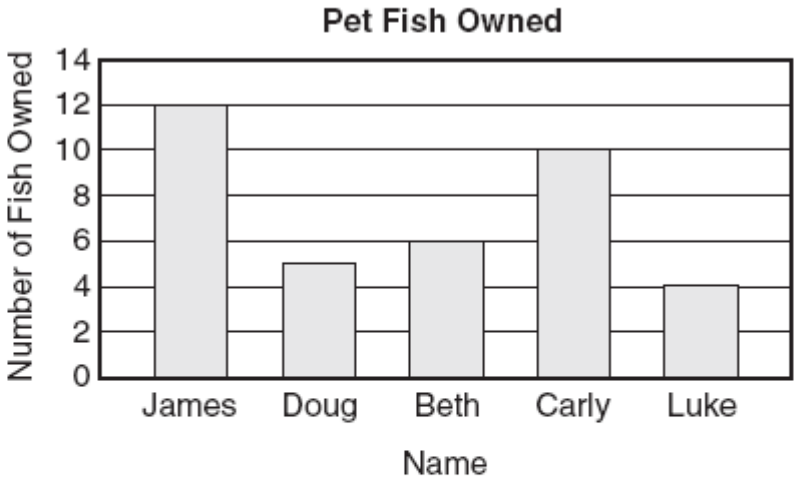
A incorrect 3-D solid

B correct

C incorrect 3-D solid

D incorrect 3-D solid

37 The graph below shows the number of pet fish owned by five friends.



What was the minimum number of fish owned by one friend?

A 12

B 10

C 4

D 2

38 Read scales on axes. Identify the max, min, range.

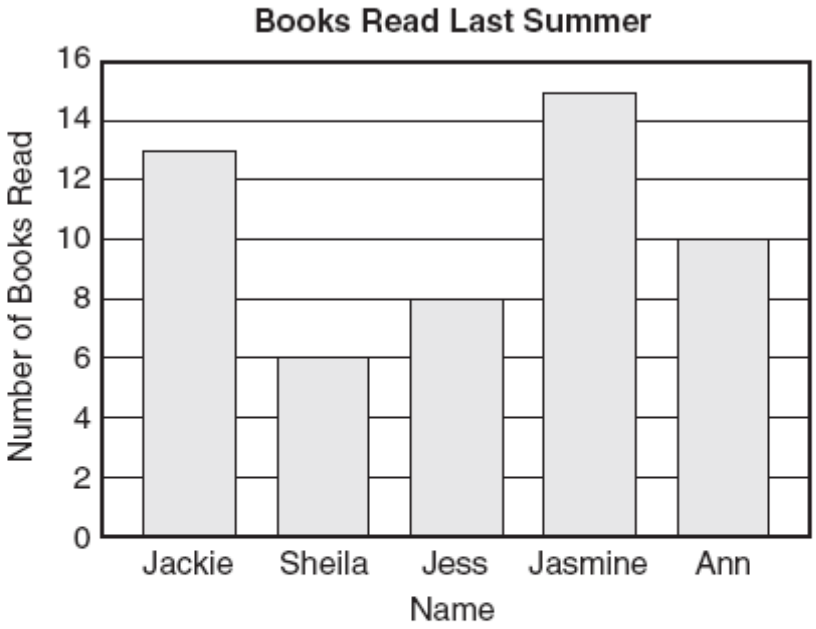
A not maximum

B minimum

C correct

D next whole number above maximum

39 The graph below shows the number of books five friends read over the last summer.



What was the minimum number of books read by one friend?

A 15

B 13

C 8

D 6

PART 3

DIRECTIONS

You will now begin Part 3 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 sheets may be used.

If you finish early, you may check your work for Part 3 **ONLY**.

Do **NOT** look at items in other parts of this test.

You will have at least 50 minutes to finish Part 3 of this test.

40 Identify operation for problem and solve

A subtraction error

B correct

C subtracted smaller face values from greater face values

D added instead of subtracted

41 Which expression *best* represents the model below?

A $3 + 4$

B $3 + 3$

C 3×3

D 3×4

42 Identify operation for problem and solve

A added instead of multiplied

B added incorrectly

C correct

D incorrect multiplication

43 Ron, Nita, Donna, and David shared $1.00 equally. What was the exact amount each one received?

A $0.25

B $0.30

C $0.50

D $0.75

44 Understand meaning of 0.50 & 0.25 related to money

A place value error

B converted one of addends to decimal form

C correct

D place value error

45 Which of the following represents half of one dollar?

A $0.25

B $0.30

C $0.50

D $0.75

46 Use common measures of length, weight, time

A correct

B unit of volume not height

C unit of mass

D temperature scale

47 Roger left his house at 12:30 p.m. He returned to the house after walking for exactly 45 minutes. At what time did he return to the house?

A 12:45 p.m.

B 1:15 p.m.

C 1:30 p.m.

D 1:45 p.m.

48 Use common measures of length, weight, time

A unit of length not weight

B unit of time

C unit of length

D correct

49 Which of the following is the *shortest* measurement?

A 6 feet

B 6 inches

C 6 yards

D 6 miles

50 Use relationships between sizes of standard units

A incorrect unit of measure

B incorrect unit of measure

C incorrect unit of measure

D correct

51 Which of the following represents the *greatest* length?

A 10 inches

B $1\frac{1}{2}$ inches

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

D 1 foot

52 Calculate area and perimeter of square & rectangle

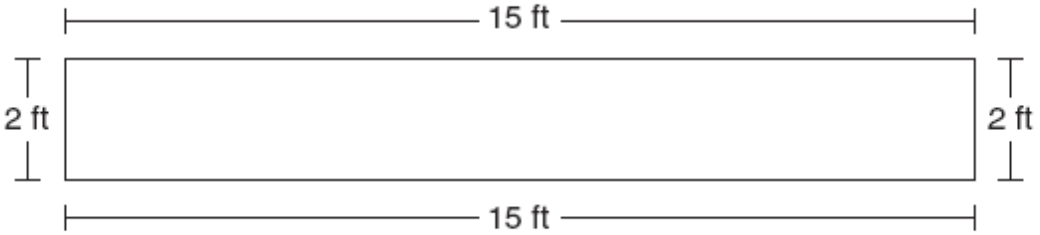
A added one length and one width

B added two lengths

C measure for area, not perimeter

D correct

53 What is the perimeter of the shape pictured below?



A 17 ft

B 19 ft

C 30 ft

D 34 ft

54 Calculate area and perimeter of square & rectangle

A measure for area, not perimeter

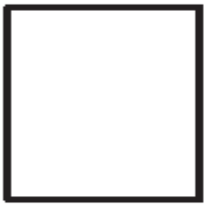
B correct

C added one length to one width

D one length

55 Which figure can be formed from the two triangles below?

A



B

C

D

56 Compose and decompose triangles and rectangles

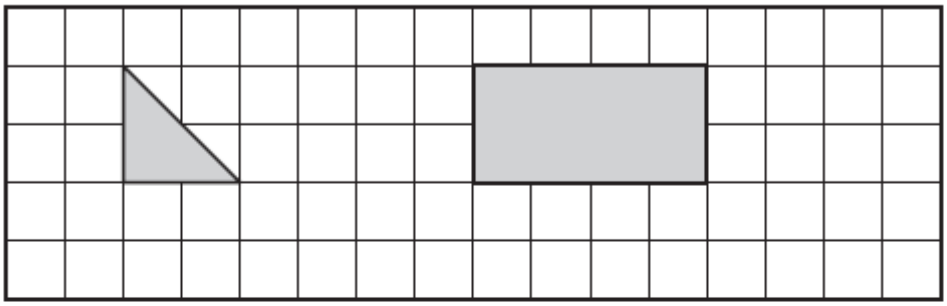
A incorrect shape

B correct

C incorrect shape

D incorrect shape

57 A triangle and a rectangle are shown on the grid below.



What is the total number of these triangles needed to make the rectangle shown on the grid?

A 3

B 4

C 5

D 6

58 Solve problems using bar graphs, compare graphs

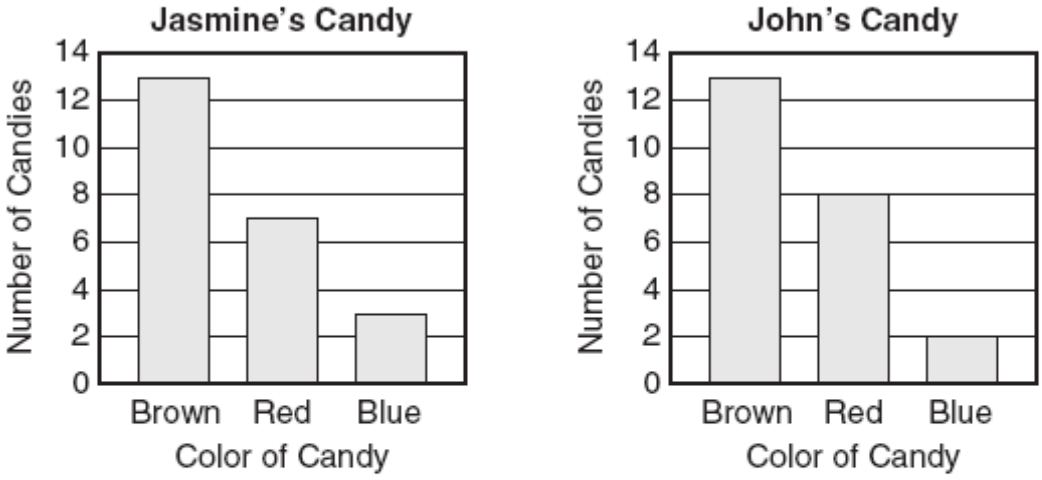
A incorrect comparison

B incorrect comparison

C incorrect comparison

D correct

59 John and Jasmine each recorded the color of the candies in their bag. The results are graphed below.



Based on the data in the graphs, which is true?

A Jasmine had more red candies than John.

B Jasmine and John had the same number of blue candies.

C John had more brown candies than Jasmine.

D John and Jasmine had the same number of brown candies.

60 Solve problems using bar graphs, compare graphs

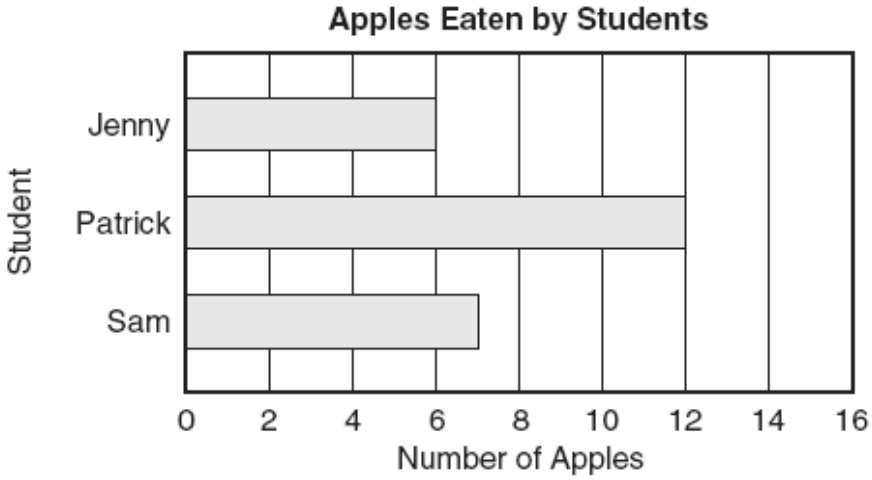
A added values from first two bars

B less than total

C correct

D greater than total

61 The bar graph shows the number of apples three students ate in September.



How many more apples did Patrick eat than Sam?

A 5

B 6

C 12

D 19

62 Identify points, line segments, lines and distance

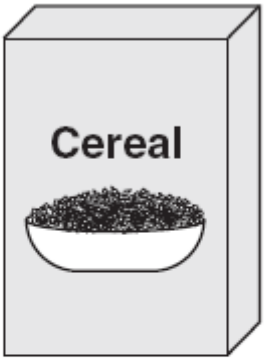
A incorrect element

B correct

C incorrect element

D incorrect element

63 Which two faces of this cereal box appear to be parallel?



A top and right side

B front and bottom

C front and back

D bottom and left side

64 Identify, describe, compare, classify 2-D shapes

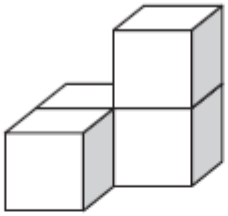
A incorrect 2-D shape

B correct

C incorrect 2-D shape

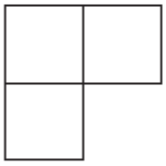
D incorrect 2-D shape

65 The solid figure below was made of centimeter cubes.

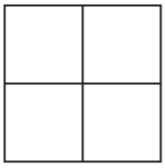


Which of the following the top view of the figure above?

A

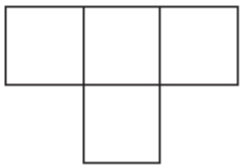


B



C

D



66 Solve problems involving money, length and time

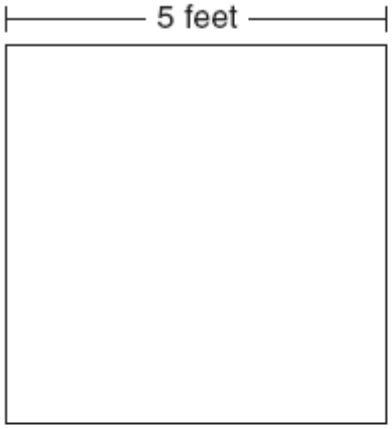
A subtracted too much total time

B correct

C subtracted one of times not two

D added times instead of subtracted

67 Jill planted flowers in the square garden pictured below.



What is the area of the garden?

(Area = length × width)

A 10 square feet

B 20 square feet

C 25 square feet

D 55 square feet

68 Find area of region by covering & counting sq. units

A area of non-shaded region

B correct

C greater than correct area

D total area of grid

69 Which of the following could be the area of a kitchen floor?

A 20 meters

B 20 square meters

C 20 kilometers

D 20 centimeters

70 Compare relative sizes of square inch & square cm

A object considerably larger than 1 square inch

B object considerably larger than 1 square inch

C object reasonably larger than 1 square inch

D correct

71 Which number goes in the blank to make the statement below true?

$$6 < \_\_\_\_ < 12$$

A 6

B 10

C 14

D 18

72 Know that even numbers end in 0, 2, 4, 6 or 8

A odd number

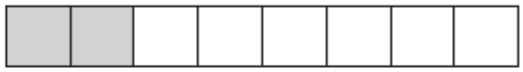
B correct

C odd number

D odd number

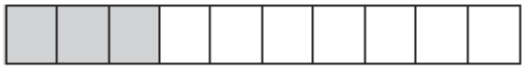
73 Which model appears to be exactly $\frac{3}{4}$ shaded?

A



B

C



D

74 Understand fraction as sum of unit fractions

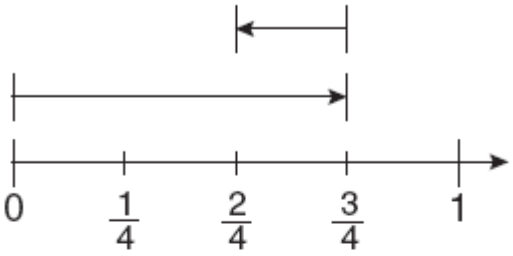
A reciprocal

B omitted one of the addends

C correct

D omitted one of addends, took reciprocal

75 Which number sentence is best represented by the model below?



A $\frac{1}{4} + \frac{2}{4} = \frac{3}{4}$

B $\frac{3}{4} - \frac{1}{4} = \frac{3}{4}$

C $\frac{3}{4} - \frac{1}{4} = \frac{2}{4}$

D $\frac{3}{4} + \frac{2}{4} = \frac{3}{4}$

76 Identify perpendicular lines and parallel lines

A perpendicular lines

B neither parallel nor perpendicular

C neither parallel nor perpendicular

D correct

77 Jane started walking at 4:20 p.m. She walked for exactly 1 hour and 20 minutes without stopping. What time did she finish walking?

A 3:00 p.m.

B 4:40 p.m.

C 5:20 p.m.

D 5:40 p.m.

78 Estimate perimeter & area of square & rectangle

A area of shaded region

B area of one-third of total

C area of two-thirds of total

D correct

79 Which group of fractions is in order from *least* to *greatest*?

A $\frac{2}{2'}\ \frac{3}{8'}\ \frac{3}{4}$

B $\frac{2}{2'}\ \frac{3}{4'}\ \frac{3}{8}$

C $\frac{3}{4'}\ \frac{3}{8'}\ \frac{2}{2}$

D $\frac{3}{8'}\ \frac{3}{4'}\ \frac{2}{2}$

80 Find solutions to open sentences that use x and ÷

A divisor too small

B divisor too small

C divisor too small

D correct

81 John had exactly 32 pennies. He sorted the pennies into stacks of 5 pennies each. How many pennies were left over?

A 37

B 27

C 2

D 0

Scoring Key: Part 1

Item No.	Correct Answer	GLCE	Type	Description
1	C	N.ME.03.01	Core-NC	Read and write numbers to 10,000
2	B	N.ME.03.01	Core-NC	Read and write numbers to 10,000
3	D	N.ME.03.01	Core-NC	Read and write numbers to 10,000
4	D	N.ME.03.02	Core-NC	Identify place value of digit in a number
5	C	N.ME.03.02	Core-NC	Identify place value of digit in a number
6	C	N.ME.03.02	Core-NC	Identify place value of digit in a number
7	B	N.FL.03.06	Core-NC	Add and subtract thru 999 w/regrouping, 9,999 w/o
8	C	N.FL.03.06	Core-NC	Add and subtract thru 999 w/regrouping, 9,999 w/o
9	C	N.FL.03.06	Core-NC	Add and subtract thru 999 w/regrouping, 9,999 w/o
10	C	N.FL.03.07	Core-NC	Estimate sum / difference of two 3-digit numbers
11	A	N.FL.03.07	Core-NC	Estimate sum / difference of two 3-digit numbers
12	B	N.FL.03.07	Core-NC	Estimate sum / difference of two 3-digit numbers
13	C	N.MR.03.09	Core-NC	Use x and ÷ to show the inverse relationship
14	D	N.MR.03.09	Core-NC	Use x and ÷ to show the inverse relationship
15	D	N.MR.03.09	Core-NC	Use x and ÷ to show the inverse relationship
16	B	N.FL.03.11	Core-NC	Find products to 10 X 10 and related quotients
17	D	N.FL.03.11	Core-NC	Find products to 10 X 10 and related quotients
18	D	N.FL.03.11	Core-NC	Find products to 10 X 10 and related quotients

NC=Non Calculator

Scoring Key: Part 2

Item No.	Correct Answer	GLCE	Type	Description
19	B	N.MR.03.10	Core	Recognize multiplication and division situations
20	D	N.MR.03.10	Core	Recognize multiplication and division situations
21	D	N.MR.03.10	Core	Recognize multiplication and division situations
22	C	N.ME.03.16	Core	Understand meaning & terminology of fractions
23	D	N.ME.03.16	Core	Understand meaning & terminology of fractions
24	D	N.ME.03.16	Core	Understand meaning & terminology of fractions
25	A	M.UN.03.02	Core	Measure in mixed units within measurement system
26	B	M.UN.03.02	Core	Measure in mixed units within measurement system
27	B	M.UN.03.02	Core	Measure in mixed units within measurement system
28	D	M.UN.03.04	Core	Know benchmark temperatures & compare cooler, warmer
29	A	M.UN.03.04	Core	Know benchmark temperatures & compare cooler, warmer
30	A	M.UN.03.04	Core	Know benchmark temperatures & compare cooler, warmer
31	D	M.PS.03.11	Core	Add and subtract money in dollars and cents
32	B	M.PS.03.11	Core	Add and subtract money in dollars and cents
33	A	M.PS.03.11	Core	Add and subtract money in dollars and cents
34	A	G.GS.03.06	Core	Identify, describe, classify familiar 3-D solids
35	B	G.GS.03.06	Core	Identify, describe, classify familiar 3-D solids
36	B	G.GS.03.06	Core	Identify, describe, classify familiar 3-D solids
37	C	D.RE.03.02	Core	Read scales on axes. Identify the max, min, range
38	C	D.RE.03.02	Core	Read scales on axes. Identify the max, min, range
39	D	D.RE.03.02	Core	Read scales on axes. Identify the max, min, range

Scoring Key: Part 3

Item No.	Correct Answer	GLCE	Type	Description
40	B	N.MR.03.15	Core	Identify operation for problem and solve
41	D	N.MR.03.15	Core	Identify operation for problem and solve
42	C	N.MR.03.15	Core	Identify operation for problem and solve
43	A	N.ME.03.21	Core	Understand meaning of 0.50 & 0.25 related to money
44	C	N.ME.03.21	Core	Understand meaning of 0.50 & 0.25 related to money
45	C	N.ME.03.21	Core	Understand meaning of 0.50 & 0.25 related to money
46	A	M.UN.03.01	Core	Use common measures of length, weight, time
47	B	M.UN.03.01	Core	Use common measures of length, weight, time
48	D	M.UN.03.01	Core	Use common measures of length, weight, time
49	B	M.UN.03.03	Core	Use relationships between sizes of standard units
50	D	M.UN.03.03	Core	Use relationships between sizes of standard units
51	C	M.UN.03.03	Core	Use relationships between sizes of standard units
52	D	M.UN.03.05	Core	Calculate area and perimeter of square & rectangle
53	D	M.UN.03.05	Core	Calculate area and perimeter of square & rectangle
54	B	M.UN.03.05	Core	Calculate area and perimeter of square & rectangle
55	C	G.SR.03.05	Core	Compose and decompose triangles and rectangles
56	B	G.SR.03.05	Core	Compose and decompose triangles and rectangles
57	B	G.SR.03.05	Core	Compose and decompose triangles and rectangles
58	D	D.RE.03.03	Core	Solve problems using bar graphs, compare graphs
59	D	D.RE.03.03	Core	Solve problems using bar graphs, compare graphs
60	C	D.RE.03.03	Core	Solve problems using bar graphs, compare graphs
61	A	D.RE.03.01	Ext. Core	Read & interpret horizontal and vertical bar graphs

Scoring Key: Part 3 (continued)

Item No.	Correct Answer	GLCE	Type	Description
62	B	G.GS.03.01	Ext. Core	Identify points, line segments, lines and distance
63	C	G.GS.03.03	Ext. Core	Identify parallel faces of rectangular prisms
64	B	G.GS.03.04	Ext. Core	Identify, describe, compare, classify 2-D shapes
65	A	G.SR.03.07	Ext. Core	Show front/top/side views of solids built w/ cubes
66	B	M.PS.03.12	Ext. Core	Solve problems involving money, length and time
67	C	M.PS.03.13	Ext. Core	Solve problems about perimeter/area of rectangles
68	B	M.UN.03.06	Ext. Core	Find area of region by covering & counting sq. units
69	B	M.UN.03.07	Ext. Core	Distinguish between units of length and area in cont
70	D	M.UN.03.08	Ext. Core	Compare relative sizes of square inch & square cm
71	B	N.ME.03.03	Ext. Core-NC	Compare and order numbers up to 10,000
72	B	N.ME.03.05	Ext. Core-NC	Know that even numbers end in 0, 2, 4, 6 or 8
73	B	N.ME.03.17	Ext. Core	Recognize, name and use equivalent fractions
74	C	N.ME.03.19	Ext. Core	Understand fraction as sum of unit fractions
75	C	N.MR.03.20	Ext. Core	Model +, - of fractions on number line
76	D	G.GS.03.02	Future Core	Identify perpendicular lines and parallel lines
77	D	M.PS.03.10	Future Core	Add and subtract lengths, weights and times
78	D	M.TE.03.09	Future Core	Estimate perimeter & area of square & rectangle
79	D	N.ME.03.18	Future Core	Place & compare fractions on number line
80	D	N.MR.03.12	Future Core	Find solutions to open sentences that use x and ÷
81	C	N.MR.03.14	Future Core	Solve division problems involving remainders

Updated 2/20/08