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?

\[ 100 = 4 \times 25 \]

\[ 100 = 4 \times \ blank \times 5 \]

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 \( 2 \times 54 \)?

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 ÷ 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 with 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 $8 \times 0.92$?
   
   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?

\[ \text{Area} = \text{length} \times \text{width} \]

\[ 4 \text{ cm} \times 3 \text{ cm} = 12 \text{ square centimeters} \]

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?

\[
\frac{1}{2} = \square \quad \frac{1}{8}
\]

A 8
B 6
C 4
D 2

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

A \(\frac{1}{4} \quad \frac{1}{3} \quad \frac{1}{2}\)

B \(\frac{1}{2} \quad \frac{1}{3} \quad \frac{1}{4}\)

C \(\frac{1}{3} \quad \frac{1}{4} \quad \frac{1}{2}\)

D \(\frac{1}{3} \quad \frac{1}{2} \quad \frac{1}{4}\)
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.

- 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 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.

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.
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.

![Grid Image]

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  \( 3 \times 2.45 \)

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.

\[
\frac{1}{4} \text{ cup pepper jack} \\
\frac{1}{4} \text{ cup cheddar} \\
\frac{3}{4} \text{ cup mozzarella}
\]

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
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 \( \frac{10}{16} \)

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 × $1.79

D $2.99 ÷ $1.79
## Scoring Key: Part 1

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

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<td>B</td>
<td>G.GS.04.02</td>
<td>Core</td>
<td>Identify basic geometric shapes and solve problems</td>
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<tr>
<td>27</td>
<td>D</td>
<td>G.SR.04.03</td>
<td>Core</td>
<td>Identify attributes of 3-D solids</td>
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<tr>
<td>28</td>
<td>D</td>
<td>G.SR.04.03</td>
<td>Core</td>
<td>Identify attributes of 3-D solids</td>
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<td>29</td>
<td>A</td>
<td>G.TR.04.05</td>
<td>Core</td>
<td>Recognize transformations of a 2-D object</td>
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<tr>
<td>30</td>
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<td>G.TR.04.05</td>
<td>Core</td>
<td>Recognize transformations of a 2-D object</td>
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<tr>
<td>31</td>
<td>D</td>
<td>N.ME.04.01</td>
<td>Extended</td>
<td>Read, write, compare &amp; order numbers to 1,000,000</td>
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<tr>
<td>32</td>
<td>C</td>
<td>N.ME.04.03</td>
<td>Extended</td>
<td>Know size &amp; place value of numbers to 1,000,000</td>
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<tr>
<td>33</td>
<td>D</td>
<td>N.MR.04.06</td>
<td>Extended</td>
<td>Know prime numbers</td>
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<tr>
<td>34</td>
<td>C</td>
<td>N.FL.04.10</td>
<td>Extended</td>
<td>Multiply whole numbers &amp; use distributive property</td>
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<tr>
<td>35</td>
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<td>N.ME.04.17</td>
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<td>Locate tenths and hundredths on a number line</td>
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<td>Extended</td>
<td>Understand fractions as parts of a set of objects</td>
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<tr>
<td>37</td>
<td>C</td>
<td>N.MR.04.23</td>
<td>Extended</td>
<td>Understand relationships within fraction families</td>
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<td>38</td>
<td>A</td>
<td>N.MR.04.26</td>
<td>Extended</td>
<td>Compare and order up to three fractions</td>
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<tr>
<td>39</td>
<td>B</td>
<td>M.TE.04.10</td>
<td>Extended</td>
<td>Know right angles &amp; compare angles to right angles</td>
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<tr>
<td>40</td>
<td>C</td>
<td>G.TR.04.04</td>
<td>Extended</td>
<td>Recognize plane figures that have line symmetry</td>
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### Scoring Key: Part 2

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