Dear incoming 5th grader,

This summer work will be collected the first week of school. It will be graded and become your first official middle school grade. You will get a score for both effort and accuracy. You MUST show work for each question to receive full credit.

-Math Team
Jane, Frank, and Denise each cut a length of ribbon.

- Jane's ribbon is 0.5 meter long.
- Frank's ribbon is 0.39 meter long.
- Denise's ribbon is 0.4 meter long.

Which statement about the lengths of the ribbons is true?

A. Jane's ribbon is longer than Frank's ribbon.
B. Denise's ribbon is longer than Jane's ribbon.
C. Frank's ribbon is longest.
D. Denise's ribbon is shortest.

Jessica is thinking of a number. She listed some of the factors of her number in the box shown below.

\[2, 3, 4, 6\]

Which of the following could be Jessica's number?

A. 12
B. 14
C. 16
D. 18

Devin wrote a number in expanded form, as shown below.

\[500,000 + 90,000 + 3,000 + 20 + 8\]

Write Devin's number in standard form.
Carl sold cookies and pies at a bake sale to earn money.

- A bag of cookies sells for $3.
- A pie sells for $8.

a. Carl sold 4 bags of cookies and 2 pies during the first hour of the bake sale. What is the total amount of money, in dollars, Carl earned during the first hour of the bake sale? Show or explain how you got your answer.

b. Ms. O’Hara bought 2 bags of cookies and 1 pie from Carl. She paid with a $20 bill. What is the total amount of change, in dollars, Ms. O’Hara should receive? Show or explain how you got your answer.

Vanessa sold cakes at the same bake sale.

c. Mr. Stanley bought 1 bag of cookies and 2 pies from Carl. Mr. Stanley also spent $11 to buy a cake from Vanessa at the bake sale. Write an equation to show \( m \), the total amount of money, in dollars, Mr. Stanley spent at the bake sale.

d. Solve the equation you wrote in part (c) to find the total amount of money, in dollars, Mr. Stanley spent at the bake sale. Show your work.
6 Which of the following shapes has exactly two lines of symmetry?

A.  

B.  

C.  

D.  

7 When rounded to the nearest thousand, the number of people who attended a concert is 18,000.
Which of the following could be the number of people who attended the concert?

A. 17,264  
B. 17,428  
C. 18,135  
D. 18,526  

21 Olivia’s height is 1.34 meters. What is Olivia’s height in centimeters?

A. 0.0134 centimeter  
B. 0.134 centimeter  
C. 13.4 centimeters  
D. 134.0 centimeters
8. Nathan is using the area model below to solve a problem.

Which problem is represented by the whole area model?

A. $12 \times 6 = \square$
B. $16 \times 13 = \square$
C. $20 \times 9 = \square$
D. $60 \times 30 = \square$

9. Kendall drew a $100^\circ$ angle from the center of a circle, as shown below.

What fraction of the circle does Kendall's angle turn through?

A. $\frac{100}{360}$
B. $\frac{100}{260}$
C. $\frac{100}{180}$
D. $\frac{100}{90}$
Erin uses $\frac{2}{8}$ yard of string to make 1 bracelet. Erin will make 6 bracelets.

a. How many yards of string will Erin use to make 6 bracelets? Show or explain how you got your answer.

Erin uses $\frac{3}{8}$ yard of string to make 1 necklace. Erin will make 5 necklaces.

b. How many yards of string will Erin use to make 5 necklaces? Show or explain how you got your answer.

c. The total number of yards of string Erin will use for 6 bracelets and 5 necklaces is between what two whole numbers? Show or explain how you got your answer.
11 Which of these numbers has a 5 whose value is ten times the value of the 5 in 7359?

A. 5268
B. 4652
C. 3005
D. 2511

12 Darlene has 16 toy spiders. She has one-half as many toy beetles as she has toy spiders.

Which of the following equations can be used to find $b$, the total number of toy beetles Darlene has?

A. $16 - 2 = b$
B. $16 \div 2 = b$
C. $16 - \frac{1}{2} = b$
D. $16 \div \frac{1}{2} = b$

13 Gianna drew an X on two sides of a triangle, as shown below.

Which statement is true about the sides that Gianna drew an X on?

A. The sides are parallel.
B. The sides are perpendicular.
C. The sides form an acute angle.
D. The sides form an obtuse angle.

14 A class of 29 students is taking a field trip to the zoo. Each ticket to the zoo costs $15.

Which of these expressions can be used to find the total cost, in dollars, of the tickets to the zoo?

A. $(29 + 10) + (29 + 5)$
B. $(29 \times 10) + (29 \times 5)$
C. $(29 + 10) \times (29 + 5)$
D. $(29 \times 10) \times (29 \times 5)$
3. Diane has the four number cards shown below.

```
8  6  5  2
```

Diane used two of her cards to make a two-digit number that is a multiple of 4. What could be the number Diane made?

4. The fraction $\frac{1}{2}$ is shaded on the fraction model below.

```
+---------------------+
|                     |
|                     |
|                     |
|                     |
|                     |
|                     |
|                     |
| 1  

| 1/2  |
| 1/3  |
| 1/3  |
| 1/3  |
| 1/4  |
| 1/4  |
| 1/4  |
| 1/4  |
| 1/6  |
| 1/6  |
| 1/6  |
| 1/6  |
| 1/6  |
| 1/6  |
| 1/6  |
| 1/6  |
| 1/8  |
| 1/8  |
| 1/8  |
| 1/8  |
| 1/8  |
| 1/8  |
| 1/8  |
| 1/10 |
| 1/10 |
| 1/10 |
| 1/10 |
| 1/10 |
| 1/10 |
| 1/10 |
```

Write two different fractions that are each equivalent to $\frac{1}{2}$. 
15 Which of these is a right triangle?

A. 

\[
\begin{array}{c}
60^\circ \\
\end{array}
\]

B. 

\[
\begin{array}{c}
90^\circ \\
\end{array}
\]

C. 

\[
\begin{array}{c}
120^\circ \\
\end{array}
\]

D. 

\[
\begin{array}{c}
140^\circ \\
\end{array}
\]

16 The recipe on a box of pancake mix tells how many cups of pancake mix are needed to make different numbers of pancakes, as shown in the table below.

<table>
<thead>
<tr>
<th>Cups of Pancake Mix</th>
<th>Number of Pancakes</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>8</td>
</tr>
<tr>
<td>2</td>
<td>16</td>
</tr>
<tr>
<td>3</td>
<td>24</td>
</tr>
<tr>
<td>4</td>
<td>32</td>
</tr>
<tr>
<td>5</td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>?</td>
</tr>
</tbody>
</table>

Based on the information in the table, how many pancakes can be made with 6 cups of pancake mix?

A. 39
B. 40
C. 46
D. 48

18 Brendan made a line plot showing the weekly rainfall, in inches, for his town one summer. His line plot is shown below.

<table>
<thead>
<tr>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
<th>X</th>
</tr>
</thead>
<tbody>
<tr>
<td>0</td>
<td>(\frac{1}{2})</td>
<td>1</td>
<td>1(\frac{1}{2})</td>
<td>2</td>
<td>2(\frac{1}{2})</td>
<td>3</td>
<td>3(\frac{1}{2})</td>
<td>4</td>
</tr>
</tbody>
</table>

Weekly Rainfall
(in inches)

Which of these expressions can Brendan use to find the difference, in inches, between the greatest weekly rainfall and the least weekly rainfall that he recorded for his town?

A. \(1\frac{1}{2} - \frac{1}{2}\)
B. \(5\frac{1}{2} - \frac{1}{2}\)
C. \(5\frac{1}{2} - 1\frac{1}{2}\)
19. Jacob wrote the expression shown below.

\[ \frac{6}{10} + \frac{7}{100} \]

Which of these is equivalent to the expression Jacob wrote?

A. \( \frac{6}{10} + \frac{7}{10} \)

B. \( \frac{60}{10} + \frac{7}{100} \)

C. \( \frac{60}{100} + \frac{7}{100} \)

D. \( \frac{60}{100} + \frac{70}{100} \)

20. A diagram of Parvati's garden and the lengths of all its sides are shown below.

Parvati's Garden

Parvati wants to put a fence around her whole garden. What is the least number of yards of fence she will need?

A. 24 yards

B. 28 yards

C. 36 yards

D. 48 yards
1. A pet store needs to put 23 birds into birdcages. Each birdcage can hold 4 birds. What is the least number of cages the pet store needs to hold all the birds?

   A. 7  
   B. 6'  
   C. 5  
   D. 4

2. The table below shows the number of lunches sold each day for three days.

<table>
<thead>
<tr>
<th>Day</th>
<th>Number of Lunches</th>
</tr>
</thead>
<tbody>
<tr>
<td>Monday</td>
<td>251</td>
</tr>
<tr>
<td>Tuesday</td>
<td>454</td>
</tr>
<tr>
<td>Wednesday</td>
<td>298</td>
</tr>
</tbody>
</table>

Which of these has a value that is closest to the total number of lunches sold for the three days?

   A. $200 + 400 + 200$  
   B. $250 + 450 + 300$  
   C. $300 + 500 + 300$  
   D. $350 + 450 + 300$

5. Which model shows a way to multiply 3 by 14?

   A. \[1 \times 3 + 3 \times 4\]  
   B. \[3 \times 10 + 1 \times 4\]  
   C. \[3 \times 10 + 3 \times 4\]  
   D. \[1 \times 3 + 1 \times 14\]
6 Which of these is true?
A. $\frac{4}{5} = \frac{5}{6}$
B. $\frac{4}{5} > \frac{5}{6}$
C. $\frac{7}{10} > \frac{5}{6}$
D. $\frac{7}{10} < \frac{4}{5}$

7 Jody read the clues below about a mystery number.

- It is a multiple of 2.
- It is a factor of 18.
- It is a composite number.

Which of these numbers could be the mystery number?
A. 2
B. 6
C. 9
D. 12

8 Tameca scored 6 points in a basketball game. Leah scored 3 times as many points as Tameca in the basketball game. Which equation shows the number of points Leah scored?
A. $6 \div 3 = 2$
B. $6 - 3 = 3$
C. $6 + 3 = 9$
D. $6 \times 3 = 18$

9 Ella collected 5 times as many bugs as Mari. Mari collected 15 bugs. What was the total number of bugs Ella collected?
A. 75
B. 55
C. 20
D. 3
A decimal number is missing from the number sentence below.

\[ 0.24 > \square \]

Which of the following represents a decimal number that belongs in the \( \square \) to make the number sentence true?

A. \[
\begin{array}{cccc}
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\end{array}
\]

B. \[
\begin{array}{cccc}
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\end{array}
\]

C. \[
\begin{array}{cccc}
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\end{array}
\]

D. \[
\begin{array}{cccc}
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\cdot&\cdot&\cdot&\cdot \\
\end{array}
\]

15 Greta recorded the number of miles she walked each day last week on a line plot, as shown below.

\[
\begin{array}{cccc}
X \\
X & X \\
X & X & X \\
1 & 1\frac{1}{2} & 2 & 2\frac{1}{2} & 3 \\
\end{array}
\]

**Number of Miles Walked**

How many miles in all did Greta walk last week?

A. 8 miles

B. 10 miles

C. 12\(\frac{1}{2}\) miles

D. 14\(\frac{1}{2}\) miles

16 What is the value of the 7 in 472,582?

A. 7 ten thousands

B. 7 thousands

C. 7 hundreds

D. 7 tens
The picture below shows the $1 \frac{1}{2}$ pans of cookies that Reggie baked.

Which of the following is another way to write $1 \frac{1}{2}$?

A. $\frac{11}{2}$  
B. $\frac{18}{2}$  
C. $1 \frac{6}{12}$  
D. $1 \frac{6}{18}$

Mr. Jones put 162 books on the library shelves. There are 6 shelves. He put the same number of books on each shelf.

How many books did Mr. Jones put on each shelf?

A. 22  
B. 26  
C. 27  
D. 28
18. Which of the following shapes has the greatest number of lines of symmetry?

A.  

B.  

C.  

D.  

19. Lisa shaded $\frac{5}{10}$ of the square shown below.

Which number shows the part of the square Lisa shaded?

A. 0.05  
B. 0.12  
C. 0.20  
D. 0.50

20. Conner wrote the equation shown below.

$$6 \times 8 = n$$

Which statement about Conner's equation is true?

A. The value of $n$ is 6 less than 8.  
B. The value of $n$ is 6 divided by 8.  
C. The value of $n$ is 6 greater than 8.  
D. The value of $n$ is 6 times as many as 8.
21. The length and width of a field are shown in the diagram below.

![Diagram of a rectangle with dimensions 50 feet by 30 feet.]

a. What is the perimeter, in feet, of the field? Show or explain how you got your answer.

b. What is the area, in square feet, of the field? Show or explain how you got your answer.

Both the length and the width of the field will be increased by 10 feet.

c. What will be the new area, in square feet, of the field? Show or explain how you got your answer.