6th Grade Course 2

Summer Work

Show all your thinking (work) this included thinking for multiple choice problems.
Assessment Guide
Cumulative Review 1

Section A  Multiple-Choice Questions

1. Which point shows the correct location of $\frac{3}{5}$?

- A) Point K
- B) Point L
- C) Point M
- D) Point N

2. Which expression represents 162 as a product of its prime factors?

- A) $2 \times 2 \times 3$
- B) $2 \times 2 \times 2 \times 2 \times 3$
- C) $2 \times 3 \times 3 \times 3$
- D) $2 \times 3 \times 3 \times 3 \times 3$

3. Which numbers are not the common factors of 52 and 76?

Choose all that apply.

- A) 2
- B) 3
- C) 4
- D) 6
- E) 13
4. Which statements are true? Choose all that apply.

A. $|-17| < |-19|$  
B. $|125| > |-132|$  
C. $81 = |-81|$  
D. $|-63| < |-48|$  
E. $|-100| > -100$  
F. $|204| > |-240|$ 

5. What is the value of $\frac{17}{28} ÷ \frac{5}{16}$? 

A. $\frac{4}{48}$  
B. $\frac{35}{68}$  
C. $\frac{33}{35}$  
D. $2 \frac{2}{35}$ 

6. What is the square of 16? 

A. 4  
B. 32  
C. 256  
D. 276 

7. Which pairs of decimals give a difference of 61.26? Choose all that apply.

A. $78.91 - 17.65$  
B. $71.02 - 9.82$  
C. $182.075 - 120.715$  
D. $96.468 - 35.208$  
E. $572.916 - 511.69$
8. What is the value of $975 \div 0.78$?
   A) 12,500
   B) 1,250
   C) 125
   D) 12.5

9. The table shows a monthly bank account statement from July to December.

<table>
<thead>
<tr>
<th>Month</th>
<th>July</th>
<th>August</th>
<th>September</th>
<th>October</th>
<th>November</th>
<th>December</th>
</tr>
</thead>
<tbody>
<tr>
<td>Balance</td>
<td>$620</td>
<td>$930</td>
<td>−$250</td>
<td>$1,140</td>
<td>−$317</td>
<td>−$1,082</td>
</tr>
</tbody>
</table>

Which statements are true?
Choose all that apply.
   A) The bank was owed −$317 in November.
   B) The account was overdrawn by the least amount in September.
   C) The account was overdrawn in September, November, and December.
   D) The total amount owed to the bank was $2,690.
   E) The total amount of credit in the account was less than the total amount owed to the bank.

10. Luke cut $22\frac{1}{2}$ meters of wire into equal pieces, each $\frac{5}{6}$ meter long. How many pieces did Luke cut?
   A) 57
   B) 42
   C) 27
   D) 15
Section B  Short Answer Questions

11 Draw a horizontal number line from −7 to 3 in the space below to represent the following set of numbers.
2, −6, 0, −1, −3, −2

12 What is the least common multiple of 7 and 9?
Write your answer in the answer grid.

13 What is the value of $9^2 \times 5^3 - 17^2$?
Write your answer in the answer grid.
14. Compare each set of numbers using > or <.

Write each answer in the circle.

<table>
<thead>
<tr>
<th>Set 1</th>
<th>0.95</th>
<th>24/25</th>
</tr>
</thead>
<tbody>
<tr>
<td>Set 2</td>
<td>5/8</td>
<td>0.58</td>
</tr>
<tr>
<td>Set 3</td>
<td>11 4/7</td>
<td>11.71</td>
</tr>
<tr>
<td>Set 4</td>
<td>0.19</td>
<td>1/9</td>
</tr>
</tbody>
</table>

15. Find the value of 0.308 × 0.62. Round your answer to 3 decimal places.

Write your answer in the answer grid.
16. Use a positive or negative number to represent each situation.

Write each answer in the table.

<table>
<thead>
<tr>
<th>Situation 1</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>325°F below zero</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Situation 2</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>A salary increment of $278 per year</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Situation 3</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>An altitude of 31,670 feet above ground level</td>
<td></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Situation 4</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Riding an elevator down 19 floors</td>
<td></td>
</tr>
</tbody>
</table>

17. Find the value of $\frac{7.39}{0.4}$.

Write your answer in the answer grid.
18 Using the fact that $6,500 = 2 \times 2 \times 5 \times 5 \times 5 \times 13$, express each number below as a product of its prime factors.

1,300  130

Explain your answers in the space below.
This question has two parts.
The capacity of a large bottle is $2\frac{1}{4}$ liters. 20 large bottles of water are poured into a container.

**Part A**
What is the volume in liters of the water in the container?

Write your answer in the answer grid.

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**Part B**
All the water in the container is poured into small bottles, each with a capacity of $\frac{9}{10}$ liter. How many small bottles are needed?

Write your answer in the answer grid.
Section C  Constructed Response  (20: 3 points, 21: 3 points, 22: 4 points)

20 Three wall clocks chime every 10 minutes, 12 minutes and 18 minutes respectively. Given that they last chimed together at 1:30 P.M., how many times will they chime together from 2 P.M. to 10 A.M. the next day?

Write your answer and your work or explanation in the space below.
This question has three parts.

The temperature at which a substance melts is called its melting point.
The table shows the melting points of some elements.

<table>
<thead>
<tr>
<th>Element</th>
<th>Hydrogen</th>
<th>Oxygen</th>
<th>Nitrogen</th>
<th>Neon</th>
<th>Fluorine</th>
</tr>
</thead>
<tbody>
<tr>
<td>Melting Point (°C)</td>
<td>−259</td>
<td>−219</td>
<td>−210</td>
<td>−249</td>
<td>−220</td>
</tr>
</tbody>
</table>

**Part A**
Which element has the lowest melting point?

Write your answer in the space below.

**Part B**
Name a pair of elements such that their melting points differ by 10°C.

Explain your answer in the space below.

**Part C**
Order the melting points from highest to lowest.

Write your answer in the space below.
This question has three parts.

In a pet shop, cat food is sold at $9.48 for 12 cans and dog food is sold at $8.96 for 8 cans.

**Part A**

Emma has $56.88 in her pocket. How many cans of cat food can she buy?

Write your answer in the answer grid.

**Part B**

Ryan claims that $83 is enough to pay for 75 cans of dog food.
Do you agree?

Explain your answer in the space below.
Part C
Amy has $56.45 in her wallet. How much will be left after she buys 6 cans of cat food and 4 cans of dog food?

Write your answer and your work or explanation in the space below.
Assessment Guide
Cumulative Review 2

Section A  Multiple-Choice Questions

1  Mr. Jones has 25 roses and 37 lilies. What is the ratio of the number of roses to the total number of flowers Mr. Jones has?
   A  25 : 37
   B  25 : 62
   C  37 : 25
   D  37 : 62

2  Which pairs of ratios are not equivalent to 18 : 54?
   Choose all that apply.
   A  1 : 3
   B  1 : 6
   C  36 : 108
   D  63 : 189
   E  108 : 304

3  What is $49\frac{5}{8}%$ expressed as a fraction in simplest form?
   A  $\frac{5}{8}$
   B  $\frac{49}{100}$
   C  $\frac{327}{600}$
   D  $\frac{397}{800}$
4. What is 71% of $2,890?
   A $2,051.90
   B $1,991.90
   C $1,491.90
   D $491.30

5. A machine can seal 140 bottles per minute. At this rate, how many bottles can it seal in 15 minutes?
   A 1,550
   B 1,900
   C 2,100
   D 3,190

6. An eagle can fly at a speed of 128 kilometers per hour. What is the distance in kilometers that it can fly in 1 hour 45 minutes?
   A 256
   B 224
   C 185.6
   D 96

7. Emma, Taylor, and Bryony collected a number of hair clips in the ratio 5 : 9 : 6. If Emma and Taylor collected 350 hair clips in all, how many hair clips did Bryony collect?
   A 25
   B 125
   C 150
   D 225
The table shows the postal charges for sending parcels to Country X.

<table>
<thead>
<tr>
<th>First 4 Ounces</th>
<th>$2.66</th>
</tr>
</thead>
<tbody>
<tr>
<td>Per Additional 1 Ounce</td>
<td>$1.30</td>
</tr>
</tbody>
</table>

How much does it cost to send a parcel weighing 10 ounces to Country X?

A) $3.96  
B) $6.62  
C) $7.92  
D) $10.46

A motorist left Town P at 12:30 P.M. and reached Town Q at 5:00 P.M. The motorist traveled at an average speed of 76 kilometers per hour. What was the distance in kilometers between Town P and Town Q?

A) 418  
B) 342  
C) 272  
D) 266

There were 42 girls and 78 boys in a sports club. What percent of the members were boys?

A) 65%  
B) 55%  
C) 54%  
D) 35%
Section B  Short Answer Questions

11  The ratio of the number of birds to the number of hamsters in a pet store is 15 : 48. What fraction of the pets in the store is birds?

Write your answer in simplest form in the space below.

12 Name two ratios that are equivalent to 10 : 35.

Explain how you worked out the answers in the space below.

13 Express each fraction or mixed number as a percent.

Write each answer in the table.

<table>
<thead>
<tr>
<th>Fraction or Mixed Number</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>( \frac{23}{5} )</td>
<td></td>
</tr>
<tr>
<td>( \frac{9}{8} )</td>
<td></td>
</tr>
<tr>
<td>( \frac{35}{200} )</td>
<td></td>
</tr>
<tr>
<td>( \frac{7}{560} )</td>
<td></td>
</tr>
</tbody>
</table>
14 The table shows the sale prices of three brands of cereal.

<table>
<thead>
<tr>
<th>Brand</th>
<th>Mass of Cereal</th>
<th>Sale Price</th>
</tr>
</thead>
<tbody>
<tr>
<td>X</td>
<td>33 oz</td>
<td>$5.61</td>
</tr>
<tr>
<td>Y</td>
<td>11.6 oz</td>
<td>$3.48</td>
</tr>
<tr>
<td>Z</td>
<td>18.5 oz</td>
<td>$4.81</td>
</tr>
</tbody>
</table>

Which brand of cereal costs the most per ounce?

Explain how you worked out the answer in the space below.

15 23% of a number is 138. What is the number?

Write your answer in the answer grid.

16 This question has two parts.

Jason cycles from his home to a park at a speed of 3 meters per second. The distance between his home and the park is 1,062 meters.
Part A
How many seconds does he take to cycle from his home to the park?
Write your answer in the answer grid.

Part B
If Jason wants to take 33 fewer seconds to reach the park, at what speed in meters per second must he cycle? Round your answer to 2 decimal places.
Write your answer in the answer grid.
This question has two parts.

The bar model shows the ratio of the number of romance novels to the number of mystery novels.

<table>
<thead>
<tr>
<th>Romance Novels</th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Mystery Novels</td>
<td></td>
</tr>
</tbody>
</table>

There are 78 romance and mystery novels in all.

**Part A**

How many novels does each unit in the bar model represent?

Explain your answer in the space below.

**Part B**

The ratio of the number of mystery novels to the number of fantasy novels is 1 : 3.
- How many units should be drawn to represent the number of fantasy novels?
- How many fantasy novels are there?

Write your answers in the space below.
Cole donated $40.80 to charity, spent $128, and had $35.20 left. What percent of his money did he donate to charity?

Write your answer in the answer grid.
Section C  Constructed Response (19: 3 points, 20: 3 points, 21: 4 points)

This question has two parts.

Today the ratio of Lily’s age to Kyle’s age is 4 : 11. After 20 years, the ratio will become 9 : 16.

Part A
How old is Kyle today?

Write your answer and your work or explanation in the space below.

Part B
Find the ratio of Lily’s age to Kyle’s age after 30 years.

Write the ratio in simplest form in the space below.
Leah and Daniel went to pick some fruit in a farm. 30% of the fruit that Leah picked were strawberries. 55% of the fruit that Daniel picked were strawberries. Eric thinks that Daniel picked more strawberries than Leah.

• Explain the error in Eric's thinking.
• Give one example to support your reasoning.
• Give one situation when Eric's thinking would be true.

Write your explanation and answers in the space below.
This question has two parts.

A car traveled from City X to City Y at an average speed of 90 kilometers per hour. It then traveled back to City X using the same route at an average speed of 75 kilometers per hour. The car took a total of 16.5 hours to travel between two cities.

**Part A**

If the car left City Y at 8 A.M, what time would it reach City X?

Write your answer and your work or explanation in the space below.
Part B

What is the distance in kilometers between City X and City Y?

Write your answer in the answer grid.
Section A  Multiple-Choice Questions  

1. A file costs 5k dollars and a notebook costs \(\frac{1}{6}\) of the file. Which expression shows the cost of the notebook in dollars?  
   - A 5k – 6  
   - B 5k + 6  
   - C 5k ÷ 6  
   - D 5k × 6  

2. What is the value of \(\frac{9x-2}{4} + 2(3 + 7x)\) when \(x = 4\)?  
   - A 71  
   - B 70\(\frac{1}{2}\)  
   - C 36\(\frac{1}{2}\)  
   - D 30\(\frac{3}{4}\)  

3. Which pairs of expressions are not equivalent? Choose all that apply.  
   - A \(p + p + p + p\) and \(p + 4\)  
   - B \(2q + 13 + 5q – 10\) and \(7q + 3\)  
   - C \(\frac{32r}{4}\) and \(\frac{20r}{2}\)  
   - D \(11s\) and \(4s + s + 6s\)  
   - E \(15u – 9u\) and \(\frac{54u}{9}\)
4 Factor the expression $18m + 27 - 6m - 11$.
   A $9(2m + 3)$
   B $8(3m + 2)$
   C $6(2m + 1)$
   D $4(3m + 4)$

5 Which is the solution of the equation $\frac{3}{5}h = \frac{7}{10}$?
   A $h = 2\frac{1}{3}$
   B $h = 1\frac{1}{5}$
   C $h = 2\frac{1}{50}$
   D $h = 1\frac{1}{10}$

6 The length of a rectangle is four times its width, $w$ inches. The perimeter of the rectangle is $p$ inches. Which equation describes the relationship between $w$ and $p$?
   A $p = 5w$
   B $p = 8w$
   C $p = 10w$
   D $p = 12w$
7. Which inequality represents the number line shown?

![Number Line]

A) \( x \geq 25 \)
B) \( x > 25 \)
C) \( x \leq 25 \)
D) \( x < 25 \)

8. Ms. Lee bought \( g \) peaches at 80 cents each and \((g + 5)\) mangoes at 60 cents each. What is the total amount of money, in cents, that Ms. Lee spent?

A) \( 140g + 400 \)
B) \( 140g + 300 \)
C) \( 80g + 400 \)
D) \( 60g + 300 \)

9. Alex painted \( x \) chairs on Monday and 6 more chairs on Tuesday. He painted a total of 109 chairs in two days. Which equation represents this situation?

A) \( x + 6 = 109 \)
B) \( x - 6 = 109 \)
C) \( 2x + 6 = 109 \)
D) \( 2x - 6 = 109 \)

10. A machine can seal fewer than 80 bottles per minute. Which inequality represents this situation?

A) \( x < 80 \)
B) \( x > 80 \)
C) \( x \leq 80 \)
D) \( x \geq 80 \)
Section B  Short Answer Questions

11  6 pencils cost \( y \) dollars. A pen costs 75 cents more than a pencil.
    Find an algebraic expression that represents the cost of the pen in dollars.
    Write your answer in the space below.

12  Evaluate \( 14 - \frac{4w + 3}{5} + \frac{w}{8} \) when \( w = 10 \).
    Write your answer as a mixed number in simplest form in the space below.
13. Expand and simplify \( \frac{2}{3} (21z + 15) + 4(3 – 2z) \).

Write your answer in the space below.

14. Explain whether \( g = \frac{1}{3} \) is the solution of the equation \( g - \frac{2}{3} = 2 \frac{1}{3} \).

If \( g = \frac{1}{3} \) is not the solution, what is the correct solution?

Show your explanation and write your answer in the space below.
Jaden is comparing the two equations shown.

\[ 8x = 72 \quad \quad x - 3 = 6 \]

He claims that the two equations are equivalent because they have the same solution. Do you agree?

Explain your answer in the space below.

16. • Draw a number line to represent the solutions of the inequality \( p \geq \frac{27}{8} \).
• Give three integer solutions of the inequality.

Show your drawing and write your answers in the space below.
This question has two parts.

Liam wrapped $h$ small boxes using 2 meters of wrapping paper for each box. He also wrapped $(h + 11)$ big boxes using 6 meters of wrapping paper for each box.

**Part A**

Find an algebraic expression for the total amount of wrapping paper Liam used.

Write your answer in the space below.

**Part B**

How much more wrapping paper did he use to wrap the big boxes than the small boxes if $h = 25$?

Write your answer and your work or explanation in the space below.
18. Ryan thinks of a number. When he multiplies the number by 14, he will get the same result as \( \frac{7}{12} \) of 816. What is the number that Ryan thought of?

Write your answer and your work or explanation in the space below.

19. Alan bought 7 boxes of beads. Each box contains 80 beads and fewer than 45% of the beads in each box have patterns on them. What is the greatest possible number of beads that have patterns on them in all the 7 boxes?

Write your answer and your work or explanation in the space below.
Section C  Constructed Response (20: 4 points, 21: 3 points, 22: 3 points)

This question has two parts.

A bookshelf weighs 6w pounds more than a chair. 5 bookshelves and 9 chairs weigh (72w + 35) pounds in all.

Part A
Find the weight of the chair in terms of w.
Write your answer and your work or explanation in the space below.

Part B
Find the total weight of 2 bookshelves and 5 chairs if w = 4.
Write your answer and your work or explanation in the space below.
This question has three parts.

Each figure in the pattern consists of some squares and circles.

Part A
Find the number of circles in Figure 5.
Write your answer and explanation in the space below.

Part B
There are $x$ squares and $y$ circles in Figure $n$.
Write an equation that relates $x$ and $y$ in the space below.
Part C

Find the number of circles in Figure 50.

Write your answer and your work or explanation in the space below.
This question has two parts.

A rectangular field has a length of 35 yards and a width of $t$ yards. The width of the field is at least 30% shorter than its length.

**Part A**

Find an inequality to represent this situation.

Write your answer in the space below.

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**Part B**

Suppose $t$ is a whole number.

- What is the greatest possible perimeter of the field?
- What is the greatest possible area of the field?

Write your answers and your work or explanations in the space below.