Grade 6 to 7 - Summer (2019) Math Packet

Directions: All of the questions in this packet reflect sixth grade math standards. Please answer all of the questions and return this packet to your new math teacher in September. All work needs to be shown, even for multiple choice questions. When answering the short response questions, show all work and write your explanations using good math vocabulary and grammar. Enjoy your summer vacation!

Part 1: Multiple Choice

1. Which of the following is an integer to represent the loss of 15 points in a game?
   A) −5  
   B) 5  
   C) 15  
   D) −15
   1   

2. Which number best represents the location of Point F on the number line below?
   A) −1.3  
   B) −1.5  
   C) −1.6  
   D) −1.8
   2   

3. The coordinates of Point C are (−5, 3). The coordinates of Point D are (4, 3). Which expression represents the distance, in units, between Points C and D?
   A) |−5| + |−3|  
   B) |−5| + |4|  
   C) |3| − |−5|  
   D) |4| − |−5|
   3   

4. Point E is the point (4, −1). Which point is 6 units from Point E?
   A) Point A  
   B) Point B  
   C) Point C  
   D) Point D
   4   

5. Which of the following has the same value as $\frac{3}{7} + \frac{1}{14}$?
   A) $\frac{3}{7} \times 14$  
   B) $\frac{3}{7} + \frac{1}{7}$  
   C) $\frac{7}{3} \times 14$  
   D) $\frac{7}{3} \times \frac{1}{14}$
   5   

   A) 10  
   B) 12  
   C) 19  
   D) 20
   6   
7 Subtract the following decimals:
   \[ 10.6 - 0.62 \]
   A  3.98
   B  4.62
   C  9.89
   D  9.98

8 Multiply the following decimals:
   \[ 7.2 \times .40 \]
   A  7.40
   B  7.60
   C  2.40
   D  2.88

9 What is the value of the expression below?
   \[ 5^2 - 3 \]
   A  2
   B  7
   C  22
   D  25

10 Jenn\(\text{a}\) bought a box of 30 Band-Aids for a total cost of $6.00. Which equation represents \(t\), the cost, of each Band-Aid?
   A  $6.00 \div 30$
   B  $6.00 \times 30$
   C  $6.00 + 30$
   D  $6.00 - 30$

11 The set of numbers 2, 4, 5, and 8 contains values for \(h\). Which values of \(h\) makes the equation below true?
   \[ 5h - 2 = 8 \]
   A  2
   B  4
   C  5
   D  8

12 What is the value of the expression below when \(a = 2\) and \(b = 3\)?
   \[ 3a^2 + 2b - 1 \]
   A  12
   B  14
   C  16
   D  17

13 Which expression is equivalent to \(12a + 20b\)?
   A  \(4(3a + 20b)\)
   B  \(4(3a + 5b)\)
   C  \(4a(3 + 5b)\)
   D  \(4ab (3 + 5)\)

14 Which expression is equivalent to \(5(2a) - a\)?
   A  \(5a - 5\)
   B  \(10a - 5\)
   C  \(9a\)
   D  \(10a\)
15. Brianne bought 8 tickets to attend a baseball game. The equation $8x = 200$ can be used to find $x$, the cost of each ticket in dollars. Which method could be used to find the cost of each ticket?

A. $200(8)$
B. $\frac{200}{8}$
C. $200 - 8$
D. $200 + 8$

16. What is the value of the expression below when $b = 5$?

$$4b + 4$$

A. 24
B. 25
C. 26
D. 30

17. Which equation below is true when $x = 5$?

A. $2(x) = 12$
B. $\frac{x}{10} = 5$
C. $10 - x = 15$
D. $x + 4 = 9$

18. Which expression is equivalent to $8(n + 2)$?

A. $n + 8$
B. $8n + 2$
C. $8n + 16$
D. $n + 10$

19. Which expression is equivalent to $4x - 2y + x + x$?

A. $4x$
B. $6x - 2y$
C. $x - 2y$
D. $8x$

20. Which situation can be represented by the expression $3.5x$?

A. The total square footage of a yard when 3.5 yards is divided into equal parts.
B. The area of a rectangle with side lengths 3.5 and $x$.
C. The total amount of change received to pay for an item that cost $3.50 more than $x$ dollars.
D. The total cost of an item that is

21. What is the value of $4^3 + 6 \times 2$?

A. 76
B. 140
C. 224
D. 324

22. Which pair of expressions is equivalent?

A. $2x + 4x$ and $6x^2$
B. $2x + 4x$ and $8x^2$
C. $2(4x)$ and $6x$
D. $2(4x)$ and $8x$

23. Stephanie made more than 5 copies of a book every hour. Which graph represents the number of books made in 2 hours?
24 Which pair of expressions below is equivalent?

A  \( a + b + a + b \) and 2(a + b)
B  3(2a – b) and 6a – 3b
C  4a – 6b and 6b – 4a
D  9a + 3b and 12ab

25 Which expression represents the phrase below?

7 more than the product of 2 and a number, \( x \).

A  \( 7 - 2x \)
B  \( 2x + 7 \)
C  \( (2 + x) - 7 \)
D  \( 7 + (2 - x) \)

26 Which inequality represents a variable \( n \), less than or equal to 25?

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

27 Which expression shown could be written for the number of marbles if there are 6 bags with \( x \) marbles in each bag, with 7 added later.

A  \( 6 - 7x \)
B  \( 6(7) \)
C  \( 6 + 7 \)
D  \( 6x + 7 \)

28 Let \( W \) = the width of a field in feet and let \( L \) = the length of the field in feet. Which equation shows the relationship for the area of the field?

A  \( A = L + W \)
B  \( A = LW \)
C  \( A = \frac{L}{W} \)
D  \( A = \frac{W}{L} \)

29 Derek and Emily were helping a teacher make a craft. Derek has helped with \( d \) crafts and Emily has helped with \( e \) crafts. Together, they have made 26 crafts. For the chart below, what could be the missing values that would show the pair of values between the variables?

<table>
<thead>
<tr>
<th>d</th>
<th>e</th>
</tr>
</thead>
<tbody>
<tr>
<td>20</td>
<td>6</td>
</tr>
<tr>
<td>13</td>
<td>a</td>
</tr>
<tr>
<td>b</td>
<td>18</td>
</tr>
<tr>
<td>16</td>
<td>c</td>
</tr>
</tbody>
</table>

A  \( a = 13, b = 8, c = 10 \)
B  \( a = 26, b = 13, c = 10 \)
C  \( a = 13, b = 26, c = 10 \)
D  \( a = 26, b = 8, c = 13 \)

30 A net of a rectangular box is shown.

What is the surface area, in inches, of the box?

A  50
B  150
C  190
D  200
31 What is the area, in square inches, of the figure below?

![Triangle with base and height labeled]

A 5.27
B 6.27
C 7.9
D 12.54

31 ____

32 The base of a rectangular prism has an area of 164.2 square centimeters and a height of 6 centimeters. What is the volume, in cubic centimeters, of the rectangular prism?

A 985.2
B 1,985.2
C 2,985.2
D 2,995.2

32 ____

33 What is the area of the isosceles trapezoid below?

![Isosceles trapezoid with dimensions labeled]

A 100 cm²
B 120 cm²
C 150 cm²
D 200 cm²

33 ____

34 Figure MATH is a rectangle. What are the coordinates of Point T?

A (0, 3)
B (0, 7)
C (7, 3)
D (3, 7)

34 ____

35 Abby babysat 4 hours each night for 4 nights. She earned a total of $160 babysitting. Abby wants to calculate her hourly rate. How much did she earn per hour babysitting?

A 4
B 6
C 8
D 10

35 ____

36 The chart below shows how much money a store receives for selling peaches.

![Table showing peach sales]

What are the total sales for 4 pounds of peaches, if the unit rate is constant?

A $15.25
B $16.75
C $17.00
D $20.75

36 ____
37 In Zander's class, 80% of the students are girls. There are 24 girls in the class. What is the total number of students in Zander's class?

A 30
B 34
C 40
D 80

38 At the monthly Boy Scout meeting, there were 14 sixth-grade students and 9 seventh-grade students in attendance. What was the ratio of seventh-grade students to sixth-grade students at their meeting?

A 14:23
B 23:14
C 14:9
D 9:14

39 John's car used 10 gallons of gas to travel 429 miles. How many miles did his car travel per gallon of gas?

A 40
B 42
C 400
D 420

40 It cost Matt $49.00 to purchase 14 gallons of gas. What was the unit cost per gallon of gas?

A $3.00
B $3.25
C $3.50
D $3.75

41 There were 8 students waiting for a bus. 5 of the students were carrying book bags and the rest were not carrying book bags. What was the ratio of students carrying book bags to those NOT carrying book bags?

A 5:3
B 3:5
C 5:8
D 8:5

42 At a 6th grade sports meeting, there were 112 boys, 70 girls, and 20 adults. What was the ratio of the number of boys to girls?

A 70 to 20
B 112 to 20
C 112 to 70
D 70 to 112

43 In the school lunchroom, there were 90 chocolate milks for sale. 40 students bought the chocolate milk. What is the ratio of the number of chocolate milks bought to the number of chocolate milks for sale?

A 90:130
B 40:130
C 90:40
D 40:90

44 Dennis earns $20 per hour tutoring students for math. If Dennis tutored for 12 hours this month, how much money did he earn this month?

A $120
B $140
C $200
D $240
45 Mr. Williams drove from Michigan to New York to visit family. The speed limit on the highway is 65 miles/hr. If Mr. Williams combined driving time for the trip was 10 hours, how many miles did he drive?

A 600 miles  
B 650 miles  
C 700 miles  
D 750 miles

46 Test scores of the students in Catherine's class are shown on the line plot below.

X X X X X X X X X X X X X X X X

55 60 65 70 75 80 85 90 95 100

What is the Median of the test scores shown on the line plot?

A 80  
B 85  
C 90  
D 95

47 Rosie's acting class times are recorded below.

31 min 52 min 56 min  
35 min 45 min 27 min

What is the Mean of her time in the acting classes?

A 37 min  
B 41 min  
C 45 min  
D 52 min

48 Which of the following is a statistical question?

A How many letters are in the last names of the students in my 6th grade class?  
B How many letters are in my last name?  
C How many pets do you have?  
D How much does your pet weigh?

49 The number of times Molly went shopping during the year, for each month were recorded as follows:

2, 3, 4, 4, 6, 7, 7, 8

Find the Mean of the data above.

A 5.2  
B 5.7  
C 6  
D 7

50 The dot plot below shows the number of goals scored by a soccer team this season.

What number of goals describes the center of the data?

A 9  
B 10  
C 11  
D 12

51 What is the least and greatest number of goals scored by the team in question 50?

A 17 least, 9 greatest  
B 9 least, 12 greatest  
C 9 least, 17 greatest  
D 11 least, 12 greatest
52. What is the value of $2(8 - 5)^2$?

A 18  
B 6  
C 11  
D 12

53. Three players are competing in a contest. Maggie has 7 points, Chris has 3 points, and Jenna has $-4$ points. What are the players' names in order from lowest to highest score?

A Maggie, Chris, Jenna  
B Jenna, Maggie, Chris  
C Chris, Maggie, Jenna  
D Jenna, Chris, Maggie

54. What is an expression for "60 less than a number $y$"?

A $y - 60$  
B $-60 + y$  
C $-60y$  
D $y + 60$

55. What is the value of $4^3 - 3^2$?

A 3  
B 6  
C 58  
D 55
Part 2: Short Response

56 What is the distance between zero and -53 on the number line?  
*Show your work:*  
*Answer:* 

57 Use the distributive property to solve the following:  
\[4(4a + 6b)\]  
*Show your work:*  
*Answer:* 

58 Ms. Olsen wrote the expression below on the whiteboard for her class. She asked the students to write an equivalent expression using no more than one set of parentheses.  
\[3(4a + 2b + 2c) + 2(a + c)\]  
- Jake wrote \[14a + 5b + 4c\]  
- Olivia wrote \[2(7a + 3b + 4c)\]  
Which of these two students wrote an expression that is equivalent to Ms. Olsen’s expression?  
*Show your work:*  
*Answer:* 

59 A car was traveling at a constant speed. The table below shows the distance, in miles, that the car traveled for 5 hours.  
Write an equation to represent the relationship between \(t\), time, and \(d\), distance traveled by car.  
*Show your work:*  

<table>
<thead>
<tr>
<th>Time (hours)</th>
<th>Distance (miles)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>40</td>
</tr>
<tr>
<td>2</td>
<td>80</td>
</tr>
<tr>
<td>3</td>
<td>120</td>
</tr>
<tr>
<td>4</td>
<td>160</td>
</tr>
<tr>
<td>5</td>
<td>200</td>
</tr>
</tbody>
</table>

*Answer:*
60 A box in the shape of a right rectangular prism has a length of 8.8 inches, a width of 4.2 inches, and a height of 5 inches. What is the volume, in cubic inches, of the box? Do not round your answer.

*Show your work:*

*Answer:* __________ cubic inches

61 Graph the polygon GHIJKL on the coordinate grid below.

\[ G(-5, 3), H(5, 3), I(5, -2), J(3, -2), K(3, -4), L(-5, -4). \]

What is the perimeter of polygon GHIJKL?

*Show your work:*

*Answer:* ______________ units

62 Gabe swam 2 hours each day, 5 days each week, for 5 weeks. In that time, Gabe swam 1,500 laps. What was his average rate in laps per hour?

*Show your work:*

*Answer:* ______________ laps per hour