Kansas City Area Teachers of Mathematics
2018 KCATM Math Competition

ALGEBRAIC REASONING AND DATA
GRADE 4
#101-140

INSTRUCTIONS

- **Do not open this booklet** until instructed to do so.
- Time limit: **15 minutes**
- You **may use calculators** on this test.
- Use **3.14** as the approximation for pi.
- Mark your answer on the answer sheet by **FILLING in the CIRCLE**.
- You **may not use rulers, protractors, or other measurement devices** on this test.

Student Name _____ Student Number _____

School _____

101. Jonathan is writing all of the factors of 100. Which of the following would **NOT** be on his list?

A. 20 B. 5 C. 10 D. 40 E. None of the above

102. Alyce is writing the first 10 multiples of 4. Which of the following would NOT be on her list?

A. 1 B. 4 C. 24 D. 36 E. None of the above

103. What is the rule for the following pattern? 1, 3, 9, 27, 81 , …

A. Multiply by 2 B. Multiply by 3 C. Multiply by 1/3

D. Divide by 3 E. None of the above.

104. The following table gives the number of students going on a fieldtrip to the Royals game in May from one school district. Which statement is true?

Grade	Boys	Girls
4th grade	141	123
5th grade	157	175
6th grade	173	174

A. There are more boys than girls going to the Royals game.

B. There are more 5th graders than 6th graders going to the game.

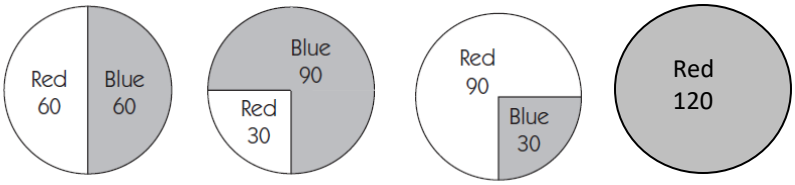
C. There are more girls than boys going to the Royals game.

D. The total number of students going is 1,543.

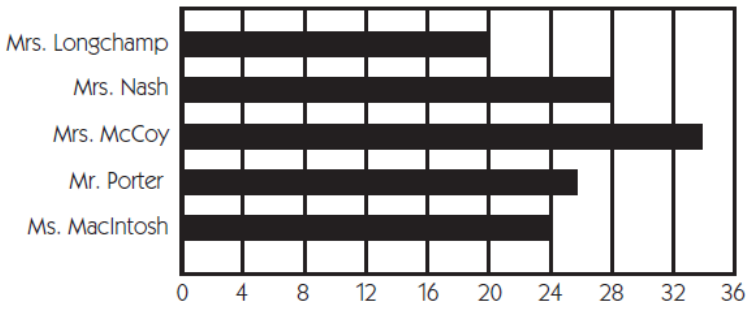
E. None of the above

105. If you have 9 red tiles and 3 blue tiles in a bag and do 120 trials to see which color you pull out, which circle would give you the closest results?

A B C D E. None of the above



106. The following table gives the number of students in each of 5 teacher's 4th grade classes. Which three classes have a total of exactly 78 students?



A. Longchamp
Nash
McCoy

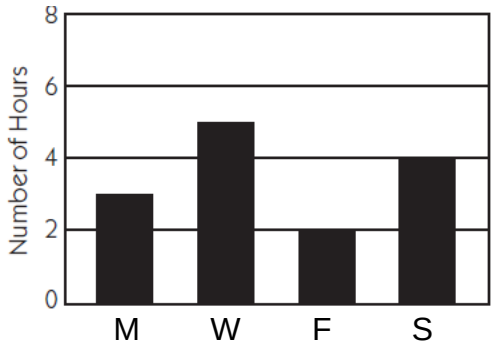
B. Nash
McCoy
MacIntosh

C. Porter
MacIntosh
Longchamp

D. MacIntosh
Porter
Nash

E. None of the above.

107. The following bar graph shows the number of hours Armando, a high school student, worked in one week. If he earns $7.50 per hour, how much did he make that week?



A. $100 B. $105 C. $110 D. $140 E. None of the above

108. Sarah is "n" years old. Glenn is three years younger than Sarah. Write the expression for Glenn's age.

A. 3 x n B. n – 3 C. n + 3 D. n ÷ 3 E. None of the above

109. In the bicycle aisle in Walmart are bicycles, **b**, and tricycles, **t**. If there are 12 bikes and 6 trikes, which expression gives you the **total number of wheels** on this merchandise?

A. 2b + 2t B. 3b + 3t C. 5(b + t) D. 2b + 3t E. None of the above

110. Using the 12 bikes and 6 trikes in problem #109, what is the total number of wheels of both of these?

A. 42 B. 36 C. 54 D. 48 E. None of the above

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111. A bottle of water costs $1.25 and a Gatorade costs double that amount in a convenience store. What would be the expression for finding the total cost at the store for both items?

A. $1.25 + $1.25 B. $1.25 + $2.50 C. $1.25 + $3.75
D. $1.25 + $2.25 E. None of the above

112. Which of the numbers is both a factor and a multiple of 5?

A. 1 B. 5 C. 10 D. 15 E. None of the above

113. Which of the numbers is both a factor of 100 and a multiple of 5?

A. 4 B. 40 C. 50 D. 500 E. None of the above

114. What is the pattern of the numbers below:

64, 32, 16 , 8, 4 …

A. Add 4 B. Mult by 2 C. Mult. by 4 D. Mult. by 1/2 E. None of the above

115. The number of students in choir last year was 256. That number increased by 83. Which expression would be a correct way to find the number of students in choir this year?

A. 256 + 83 B. 256 x 83 C. 256 - 83
D. 256 ÷ 83 E. None of the above

116. Eight times what number is eight hundred twenty-four? Which sentence describes how to solve this problem and gives the correct answer?

A. 8 x n = 824; 130 B. 824 ÷ 8 = n; 103 C. 8 x n = 804; 100 ½
D. 804 ÷ 8; 100 ½ E. None of the above

117. Kim had 4 packages of gum that 6 pieces in each package. Kim has 9 pieces left. Which equation can be used to find out how many pieces of gum Kim chewed? Let p = pieces of gum chewed

A. 6 x 9 = p + 15 B. 6 + 15 + 9 = p C. 15 – 9 = 6 + p
D. 4 x 6 – 9 = p E. None of the above

118. During the Winter Olympics, one ski race changes elevation during the race by starting at an elevation of 495m, then goes down 264m, then up 17m. Which equation will give the elevation, e, at the end of the race?

A. 495 – 264 – 17 = e B. 495 + 264 – 17 = e C. 495 – 264 + 17 = e
D. 495 + 264 + 17 = e E. None of the above

119. You purchased a bag of 500 popsicle sticks for an art project for your class. Each student received 22 sticks with 6 remaining popsicle sticks. Which process would you use to find the number of students, n, in your class?

A. 500 – (22 x 6) = n B. (500 ÷ 22) + 6 = n C. (500 – 6) ÷ 22
D. (500 ÷ 22) - 6 = n E. None of the above

120. How would you write this expression: A number is less than 13

A. N < 13 B. 13 < N C. N > 13
D. 13 $\geq$ N E. None of the above

121. You have a penny jar and you dumped all of the pennies out to count them. You grouped them in 50's since the paper wrapper you turn into the bank holds 50. You came up with 17 full wrappers with 31 extra pennies. Which statement would give you how many pennies were in the jar? Let p = pennies in the jar

A. (31 x 17) + 50 = p B. (50 x 17) – 31 = p C. (50 x 17) + 31
D. (50 x 31) + 17 E. None of the above

Use for #122-124:
The following are your test scores for math: **76%, 85%, 87%, 91%, and 91%**

122. What is the **mode** value of your test scores?

A. 91% B. 87% C. 85% D. 76% E. None of the above

123. What is the median of your test scores?

A. 91% B. 87% C. 85% D. 76% E. None of the above

124. What is the mean of your test scores?

A. 86% B. 87% C. 88% D. 89% E. None of the above

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125. Which operation would you use when "decreased" is used? Ex. " My $75 gift card was decreased by $23 when I shopped on Amazon."

A. Addition B. Subtraction C. Multiplication D. Division E. None of the above

126. Which operation would you use when the word "quotient" is used? Ex: "I had to find the quotient of $75 and 3 when I shared my gift card with my siblings."

A. Addition B. Subtraction C. Multiplication D. Division E. None of the above

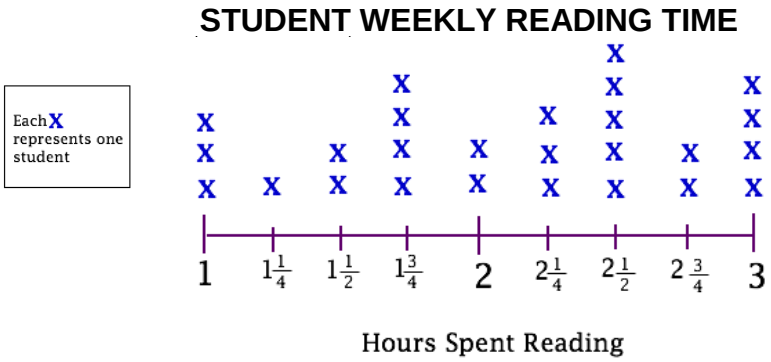
127. Your teacher wants to order enough pizza for 16 people. Each of the 6 pizzas ordered will be cut into 12 pieces with the plan being that everyone would be able to have 4 pieces. How many **extra pieces** would there be?

A. 4 B. 6 C. 8 D. 12 E. None of the above

128. What number is the greatest common factor of both 24 and 72?

A. 4 B. 6 C. 12 D. 24 E. None of the above

Use the graph for problems #129-130.



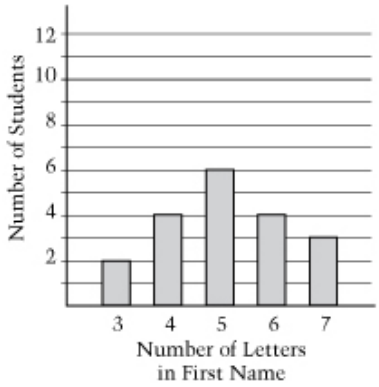
129. What fractional amount of the class reads more than 2 hours? Simplify the fraction.

A. $\frac{8}{13}$ B. $\frac{7}{13}$ C. $\frac{5}{13}$ D. $\frac{15}{26}$ E. None of the above

130. There is a strong relationship between reading and success in all of your other subjects. How many more people read 2 or more hours than read less than 2 hours?

A. 2 B. 4 C. 5 D. 6 E. None of the above

Use the bar graph for problems #130 – 132.



Another student named "Victor" joined the class but is not on the bar graph.

<u>Adjust the bar graph</u> to add Victor's name before answering the questions below.

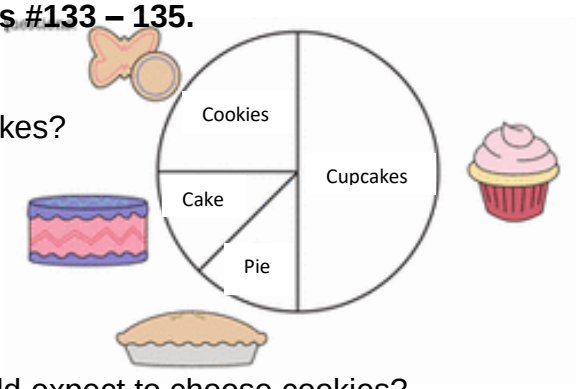
131. After putting "Victor" on the graph, what would be the number of students who have 5 or more letters in their name?

A. 12 B. 13 C. 14 D. 15 E. None of the above

132. How many students are in the class counting Victor?

A. 18 B. 19 C. 20 D. 21 E. None of the above

Use the Dessert data in the pie chart for problems #133 – 135.



133. What fractional amount was selected as cupcakes?

A. $\frac{1}{4}$ B. $\frac{1}{2}$ C. $\frac{1}{8}$ D. $\frac{3}{4}$ E. None of the above

134. If 100 students were surveyed, how many would expect to choose cookies?

A. 50 B. 25 C. 12 D. 13 E. None of the above

135. If you were to make 10 pies, how many of each of the others would you make to honor the survey of baking the favorite desserts?

A. 10 cakes, 20 cookies, 40 cupcakes B. 10 cakes, 40 cookies, 80 cupcakes
C. 10 cakes, 15 cookies, 35 cupcakes D. 10 cakes, 25 cookies, 50 cupcakes
E. None of the above

136. What property is used in this example: 3 + 4 = 4 + 3

A. Commutative of + B. Associative of + C. Associative of x
D. Commutative of x E. None of the above

137. "Seven less than a number, n" is which expression?

A. 7 - n B. n - 7 C. n ÷ 7 D. n + 7 E. None of the above

138. Which way would be an accurate method to find n, when "n ÷ 3 = 50"?

A. Add 3 B. Subtract 3 C. Multiply by 3 D. Mult by 1/3 E. None of the above

139. A printer can print 80 pages in 5 minutes. How many pages can it print in an hour?

A. 400 B. 960 C. 16 D. 880 E. None of the above

140. How many hours will it take your parents to drive 300 miles when they drive at a constant speed on the interstate of 75 miles per hour?

A. 2 ½ hrs. B. 3 hrs. C. 3 ½ hrs. D. 4 hrs. E. None of the above