

Kansas City Area Teachers of Mathematics
2018 KCATM Math Competition

STATISTICS and PROBABILITY
GRADE 6
#101-140

INSTRUCTIONS

- **Do not open this booklet** until instructed to do so.
- Time limit: **20 minutes**
- You **may use calculators** on this test.
- Mark your answer on the answer sheet by **FILLING in the oval**.
- You **may not use rulers, protractors, or other measurement devices** on this test.
- Choice **E** can be a valid answer. It will indicate that the answer is "None of the above."

Student Name _____ Student Number _____

School _____

Use the data set: {3, 12, 11, 3, 3, 11, 8, 12, 4, 0, 0} for problems #101-105.

101. What is the mode of the data set?

- A. 0 B. 3 C. 4 D. 11 E. None of the above

102. What is the median of the data set?

- A. 0 B. 3 C. 4 D. 12 E. None of the above

103. What is the range of the data?

- A. 0 B. 9 C. 9 D. 12 E. None of the above

104. To the nearest tenth, what is the mean?

- A. 5.8 B. 5.9 C. 6.0 D. 6.1 E. None of the above

105. Which of the following would **NOT** be possible for the data gathered in this set?

- A. The total inches of snowfall in Kansas City for a winter season.
B. The ages of students in kindergarten through 7th grade.
C. The number of years employees have worked for the same company.
D. The miles you travel for your job.
E. None of the above

Use the pie chart to answer the probability questions in problems #106 – 108.

106. What is the probability that a spinner will land on **Blue**?

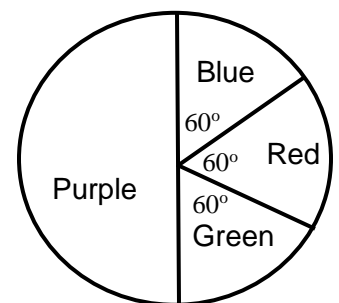
- A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{5}$ D. $\frac{1}{12}$ E. None of the above

107. What is the probability of landing on either **Red or Green**?

- A. $\frac{1}{6}$ B. $\frac{1}{4}$ C. $\frac{1}{3}$ D. $\frac{1}{2}$ E. None of the above

108. What is the probability on **NOT** landing on Red?

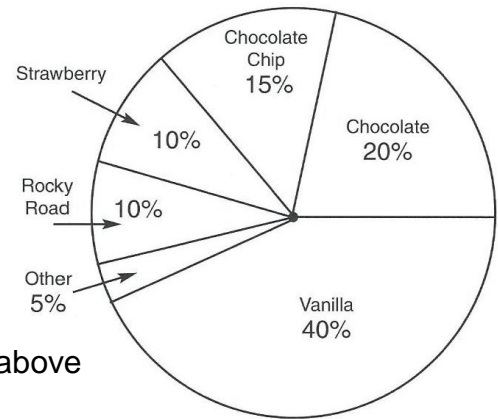
- A. $\frac{1}{6}$ B. $\frac{1}{2}$ C. $\frac{5}{6}$ D. $\frac{2}{3}$ E. None of the above



Use the pie chart for problems #109-112.

Note: 200 people were surveyed.

FAVORITE ICE CREAM FLAVOR



109. How many people chose vanilla ice cream as their favorite?

- A. 40 B. 60 C. 80 D. 90 E. None of the above

110. What is the degree of the obtuse angle representing vanilla ice cream?

- A. 150° B. 144° C. 135° D. 120° E. None of the above

111. The three types of ice cream that have chocolate are Chocolate Chip, Rocky Road, and Chocolate. Determine how many people out of the 200 have chocolate in their favorite ice cream?

- A. 100 B. 95 C. 90 D. 85 E. None of the above

112. How many did **NOT** choose strawberry?

- A. 20 B. 100 C. 150 D. 180 E. None of the above

Use the schedule for the Basset Hound Bus Company to answer #113– 114.

Bus #	Leaves Downtown to the Mall	Leaves the Mall to the Swimming Pool & Park	Leaves the Swimming Pool/Park to Return to the Mall	Leaves the Mall to Downtown	Arrives Downtown
1	7:20	7:32	7:56	8:20	8:27
2	8:20	8:32	8:56	9:20	9:27
3	9:20	9:32	9:56	10:20	10:27
4	10:20	10:32	10:56	11:20	11:27
5	11:20	11:32	11:56	12:20	12:27

113. Determine the travel time of a **round trip to the swimming pool and back to downtown on the bus**. There is a 5 minute loading time (*not travel time*) built in to every stop before the bus leaves.

- A. 33 min. B. 40 min. C. 52 min. D. 67 min. E. None of the above

114. If your swim lesson begins at 8:40 and lasts a $\frac{3}{4}$ of an hour, which bus will you take get you there on time and what is the first bus you can take to return to downtown?

- A. 1 and 2 B. 1 and 3 C. 2 and 3 D. 2 and 4 E. None of the above

Use the Cool Fashions Sales in May for problems #115-117. The last row “Price” is the average price per item sold.

COOL FASHIONS: MAY SALES

	Jeans	Sweaters	Shirts	Hats	Shoes	Socks
Week 1	139	47	214	38	97	118
Week 2	215	59	342	67	113	146
Week 3	174	36	281	45	86	103
Week 4	143	29	253	42	79	124
Price	\$52	\$60	\$36	\$16	\$45	\$10

115. How much money was taken in on all sales during Week 1?

- A. \$23,385 B. \$23,450 C. \$23,870 D. \$23,885 E. None of the above

116. How much money was taken in on sales of sweaters during the 4 weeks?

- A. \$10,260 B. \$10,620 C. \$9,660 D. \$10,180 E. None of the above

117. Find the 2 items that were the most popular. Determine the difference between the total numbers sold during the 4 weeks.

- A. 599 B. 180 C. 419 D. 392 E. None of the above

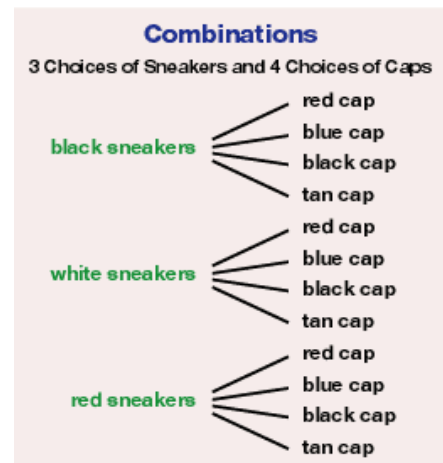
Use the tree diagram with sneaker and color of caps for #118 – 119.

118. How many different combinations are there?

- A. 3 B. 4 C. 15
D. 12 E. None of the above

119. Given the combinations to the right, what is the probability of wearing an outfit with a blue hat (supporting the Royals)?

- A. 1/3 B. 1/4 C. 1/8
D. 1/12 E. None of the above



120. You have 6 books you want to put on a shelf. How many different ways can them be placed on the shelf?

- A. 6 B. 60 C. 120 D. 720 E. None of the above

121. You are choosing your outfit for the school day. You are going to select one pair of jeans out of your 3 favorite, a school t-shirt out of the 4 that you won, and a hooded sweatshirt from one of the 2 you have. How many different outfits could you select?

- A. 9 B. 24 C. 48 D. 60 E. None of the above

An accelerated group of 6th graders took Algebra 1 this year. Their test scores are listed in the chart. Use this chart for problems #122-128.

122. How many students took the exam?

- A. 30 B. 34 C. 39
D. 41 E. None of the above

123. What is the range of the test scores?

- A. 60 B. 55 C. 50
D. 40 E. None of the above

124. To the nearest tenth, what was the mean score of the tests?

- A. 81.5% B. 79.5% C. 83.5% D. 82.5% E. None of the above

125. What was the median test score?

- A. 70 B. 75 C. 80 D. 85 E. None of the above

126. What was the mode of the test scores?

- A. 70 B. 75 C. 80 D. 85 E. None of the above

127. How many students scored an 85 or more on the exam?

- A. 19 B. 18 C. 17 D. 20 E. None of the above

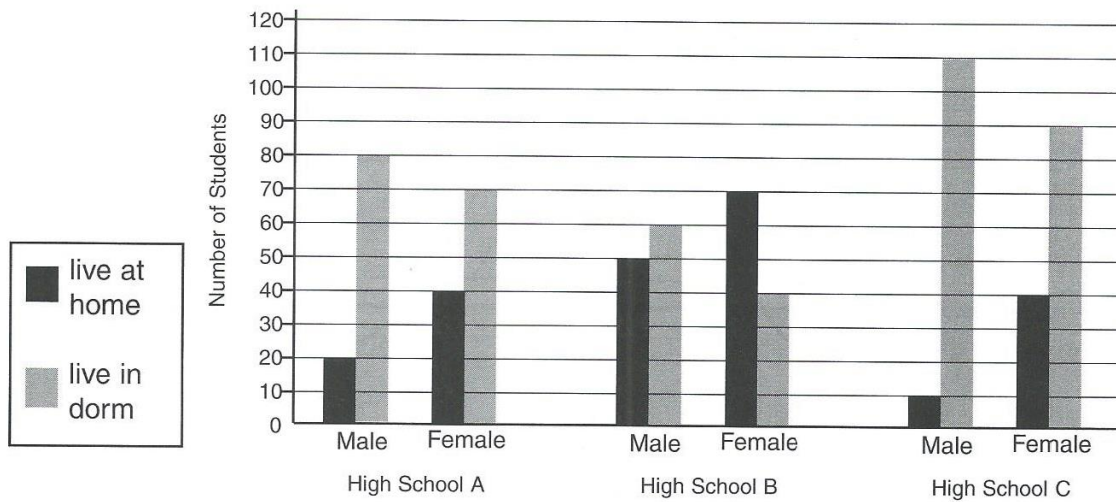
128. To the nearest tenth of a percent, what percent of students scored below 75%?

- A. 12.3% B. 14.8% C. 15.4% D. 16.1% E. None of the above

ALGEBRA I EXAM RESULTS

Exam Score	Number of Students
100	3
95	2
90	6
85	8
80	5
75	9
70	2
65	3
60	1

Where High-School Seniors Plan to Live at College



Use the above bar graph for problems #129 – 132.

129. Which school shows more female students planning to live at home than in a dorm?

- A. A B. B C. C D. E. None of the above

130. In High School A, how many more males plan on living in a dorm than at home?

- A. 20 B. 50 C. 60 D. 70 E. None of the above

131. In all three schools, how many females are planning on going to college?

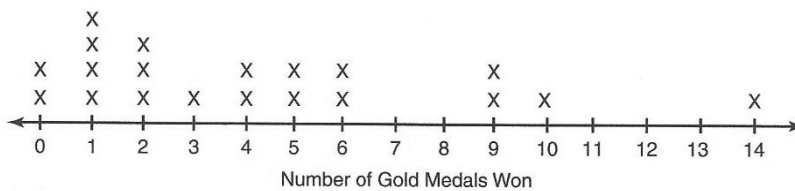
- A. 200 B. 250 C. 350 D. 450 E. None of the above

132. In High School B, how many males plan on going to college?

- A. 40 B. 70 C. 80 D. 110 E. None of the above

Use the 2010 Olympic Medal Line Plot Graph for problems #133 – 134.

2010 Winter Olympics Gold Medal Wins by Top 20 Medal-Winning Countries



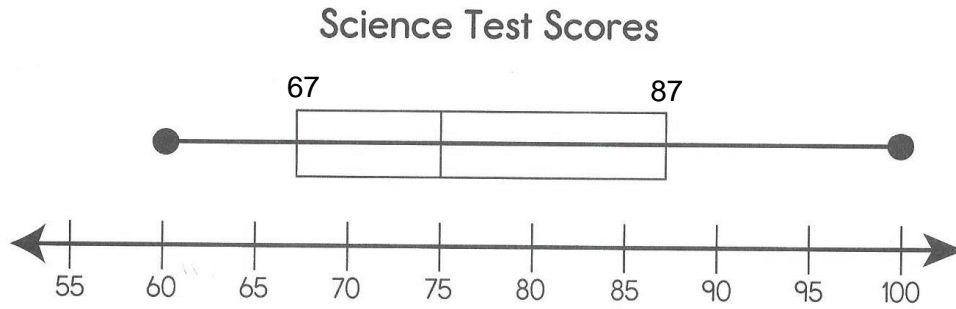
133. The data is skewed, meaning there are more countries who earned a low number of medals compared to a high number of medals. What is the median of the medals earned?

- A. 3 B. 3.5 C. 4 D. 4.5 E. None of the above

134. To the nearest percent, how many countries earned 9 or more medals?

- A. 20% B. 15% C. 12% D. 10% E. None of the above

Use the Box Plot of the Science scores for problems # 134-138.



135. What is the minimum test score?
 A. 55 B. 60 C. 67 D. 70 E. None of the above
136. What is the range of the data?
 A. 20 B. 33 C. 40 D. 45 E. None of the above
137. What is the median of the data?
 A. 67 B. 75 C. 87 D. 100 E. None of the above
138. What is the interquartile range?
 A. 20 B. 8 C. 12 D. 40 E. None of the above

When you toss two dice, the chart shows all of the options of how different sums are found. Use the table for problems #139 – 140.

Example: "3" could be 1 on Dice 1 and 2 on Dice 2 OR a 2 on Dice 1 and 1 on Dice 2

Total on dice	Combinations
2	1+1
3	1+2, 2+1
4	1+3, 2+2, 3+1
5	1+4, 2+3, 3+2, 4+1
6	1+5, 2+4, 3+3, 4+2, 5+1
7	1+6, 2+5, 3+4, 4+3, 5+2, 6+1
8	2+6, 3+5, 4+4, 5+3, 6+2
9	3+6, 4+5, 5+4, 6+3
10	4+6, 5+5, 6+4
11	5+6, 6+5
12	6+6

139. What is the probability of getting a sum of "4"?
 A. 1/12 B. 1/9 C. 1/6
 D. 1/3 E. None of the above
140. What decimal value to the nearest thousandths represents the probability of landing on a "7"?
 A. 0.138 B. 0.167 C. 0.111
 D. 0.333 E. None of the above