TEST NAME: **MT EOG Stats**
TEST ID: **2427161**
GRADE: **07 - Seventh Grade**
SUBJECT: **Mathematics**
TEST CATEGORY: **School Assessment**

Student:

Class:

Date:

1. **Mr. Torres is ordering 250 school T-shirts to sell in the school store. The T-shirts come in blue, gray, or red. To know how many of each color to order, Mr. Torres polled a random sample of students. The results are in the table.**

Color	Blue	Gray	Red	Total
Number of Student Votes	13	12	5	30

Of the 250 total T-shirts, about how many should be red?

A. 5

B. 17

C. 40

D. 83

2. **There are approximately 16,000 Costa Rican butterflies at a local butterfly show. The number of each type of butterfly is unknown. The results of random nettings taken during the show are given in the table.**

Butterfly Nettings	
Butterfly	**Number**
Blue Morpho	12
Florida White	26
Owl Butterfly	27
Hecale Longwing	67
Ruby-spotted Swallowtail	68

Which of the following is a FALSE inference?

A. Only about 6% of the butterflies in the show are Blue Morpho butterflies.

B. Over half of the butterflies in the show are either Hecale Longwings or Ruby-spotted Swallowtails.

C. There are about 10% more Ruby-spotted Swallowtail butterflies than Hecale Longwings in the show.

D. There are about half as many Blue Morpho butterflies as there are Florida White butterflies in the show.

3. **Kevin conducted a survey of a random sample of registered voters in his town to determine their preferred candidate for mayor in the next election. The results of the survey are shown in the table below.**

Survey Results

Candidate	Likely Voter Preference
A	240
B	210
C	50

There are 18,000 registered voters in Kevin's town. Based on the data in the table, what is the BEST estimate of the number of people who will vote for Candidate A if all the registered voters cast a ballot?

A. 3750
B. 4320
C. 8640
D. 9600

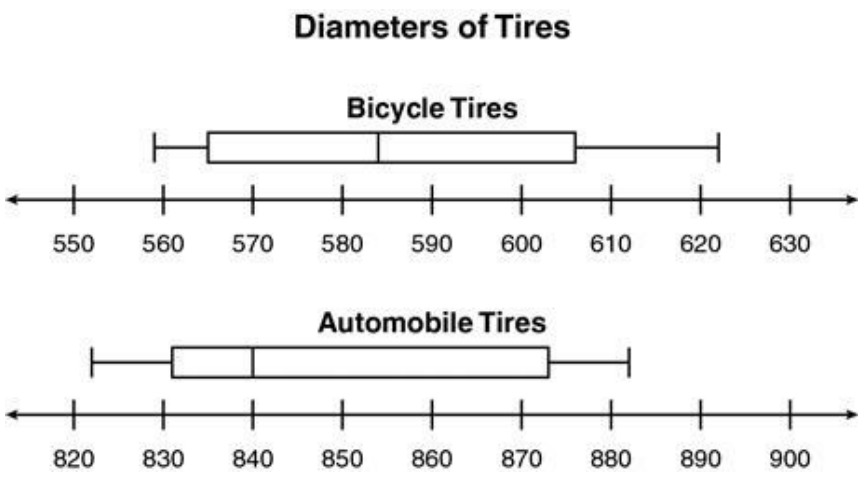
4. **Bobby is designing a simulation to answer the question below.**

If 21% of the customers at a restaurant order fish, what is the probability that the next 3 customers in a row will order fish?

Which design using red marbles to represent customers who order fish is BEST for the simulation?

A. randomly select 3 marbles from 21 red marbles and 79 green marbles
B. randomly select 3 marbles from 63 red marbles and 37 green marbles
C. randomly select 3 marbles from 7 red marbles and 93 green marbles
D. randomly select 3 marbles from 1 red marble and 99 green marbles

5. **The diameters, in millimeters, of some bicycle tires and automobile tires are summarized in the box-and-whiskers plots.**



Approximately how many times the difference between the medians of the automobile tires and the bicycle tires is the range of the bicycle tires?

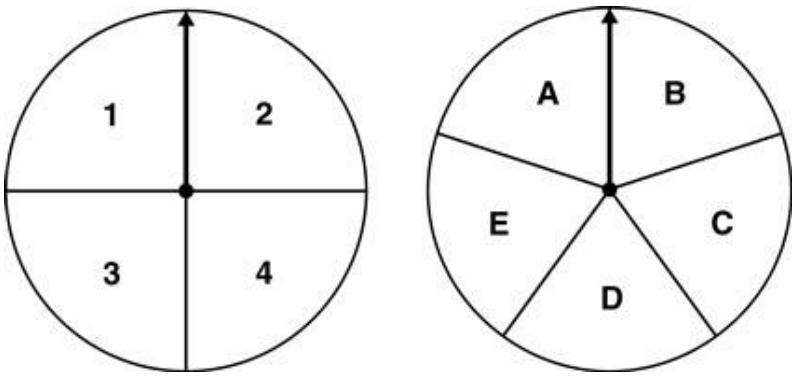
A. 4
B. 6
C. 40
D. 60

6. **A box contains about 250 marbles in 5 different colors. James selected a random sample of 30 marbles and counted 16 red, 5 blue, 5 green, 3 white, and 1 yellow.**

Which statement is NOT a valid inference about all of the marbles in the box?

A. There is exactly 1 yellow marble in the box.
B. There are about 25 white marbles in the box.
C. There are more red marbles than any other color.
D. There are about the same number of blue and green marbles.

7. **There is a 25% chance of rain on Saturday and a 40% chance of rain on Sunday. Matthew designed a simulation to predict the probability of rain on both Saturday and Sunday. He used two fair spinners, as shown below, for the simulation.**



Matthew's simulation consists of spinning the arrow on each spinner exactly one time.

- **"1" on the first spinner represents the chance of rain on Saturday.**
- **"A" and "B" on the second spinner represent the chance of rain on Sunday.**

Matthew conducted his simulation 25 times. His results are shown in the chart.

4B	1D	2D	3C	2E
1A	2B	2C	2C	1C
4E	3B	4E	1B	2D
4B	4E	2C	2C	4C
3D	1B	3C	2A	4E

Based on the results of Matthew's simulation, what is the probability of rain on both Saturday and Sunday?

A. 4%

B. 12%

C. 20%

D. 24%

8. **Two friends are playing a game. A spinner is divided into four equal sections labeled 2, 4, 6, and 8. To make a move in the game, the spinner is spun and then either a blue or red card is randomly chosen. What is the probability that the spinner will land on either the number 4 or 8 and a blue card is chosen?**

A. $\frac{1}{4}$

B. $\frac{3}{8}$

C. $\frac{1}{2}$

D. $\frac{3}{4}$

9. **Lei has a bag full of marbles. She draws one marble from the bag, notes the color, and then returns the marble to the bag. She repeats this process and makes a table with the results.**

Results of Marble Draw Experiment

Color	Number
Green	8
Blue	6
Red	7
Yellow	4

If there are 500 marbles in the bag, how many of them are MOST likely green?

A. 140

B. 160

C. 180

D. 200

10. **A closet contains 5 short-sleeve shirts and 3 long-sleeve shirts. Two shirts are chosen from the closet without looking. What is the probability that both shirts have short sleeves?**

A. $\frac{3}{28}$

B. $\frac{9}{64}$

C. $\frac{5}{14}$

D. $\frac{25}{64}$

11. **The lists below show the weights, in ounces, of fish caught and released back into the water by Joanna and Manuel.**

- **Weights of Joanna's fish: 16, 20, 23, 28, 33**
- **Weights of Manuel's fish: 22, 22, 26, 30, 35**

Approximately how many times the difference between the mean weight of Manuel's fish and the mean weight of Joanna's fish is the range of the weights of Manuel's fish?

A. 3
B. 4
C. 13
D. 17

12. **In a random sample survey of 80 students at Torrey's middle school, 24 students said that math was their favorite subject. There are a total of 300 students at this middle school. Based on the survey, which value is the BEST estimate for the number of students who would say that math is their favorite subject?**

A. 72
B. 90
C. 150
D. 244

13. **The chart shows the numbers of lines Ana and Daris used in poems they wrote.**

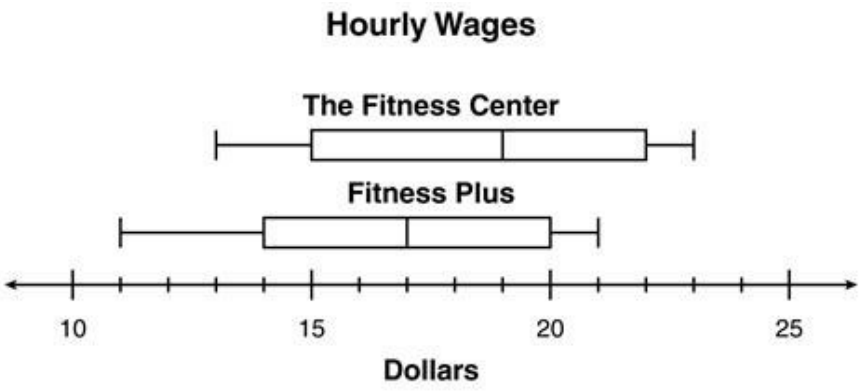
Numbers of Lines Used in Poems

Poem	Ana's Data	Daris's Data
1	30	10
2	30	10
3	30	50
4	40	60
5	50	65

Based on the data, which statement is true?

A. In Ana's data, the median is closer to the mean than in Daris's data.
B. In Daris's data, the median is closer to the mean than in Ana's data.
C. In both sets of data, the mode is greater than the median.
D. In both sets of data, the mode is equal to the median.

14. **The box-and-whisker plots summarize the hourly wages of employees at two different fitness clubs.**



Based on the box-and-whisker plots, which statement must be valid?

A. Fitness Plus has a smaller spread in the upper 25% of the hourly wages than The Fitness Center.

B. Fitness Plus has a smaller spread in the middle 50% of the hourly wages than The Fitness Center.

C. The Fitness Center has more employees earning an hourly wage of $17 than Fitness Plus.

D. The Fitness Center has a larger range in employee hourly wages than Fitness Plus.

15. **There are 5 brown horses and 4 tan horses in a barn. Sonia will randomly select two horses to ride with her friend. What is the probability that the first horse selected is tan and the second horse selected is brown?**

A. $\frac{5}{18}$

B. $\frac{20}{81}$

C. $\frac{2}{9}$

D. $\frac{1}{20}$

16. **Biologists want to determine the number of raccoons in a particular forested area. They captured 16 raccoons, tagged them, and then released them back into the area. The next week 40 raccoons were caught, of which 9 were tagged. What is the best estimate of the number of raccoons in the area?**

A. 23

B. 56

C. 65

D. 71

17. **Mr. Foley wants to randomly select 3 students for a committee. He used 3 coins to conduct a simulation to predict the probability that the committee will have at least 2 girls. The results of 16 trials of the simulation are shown below. Let H represent a girl and T represent a boy.**

TTH	HTH	THH	HHH
HTT	THT	THT	HHT
HHT	THH	TTT	HTT
HHH	HTH	TTH	HHT

Based on the results of the simulation, what is the probability that the committee Mr. Foley selects will have at LEAST 2 girls?

A. $\frac{9}{16}$

B. $\frac{8}{16}$

C. $\frac{7}{16}$

D. $\frac{6}{16}$

18. **A box of cereal contains one of four possible prizes. Each prize has an equal chance of being in a given box. Heather used a simulation to determine the number of boxes needed to get all four prizes. She used the integers 1 to 4 to represent each of the prizes. The results of 10 trials of the simulation are shown below.**

44132	3124
1441214113	4422113
1224143	1432
144113432	141211423
31113342	241243

Based on the simulation, what is the probability that it will take at least 7 boxes to receive all four prizes?

A. 0.40

B. 0.50

C. 0.60

D. 0.70

19. **A plant nursery sells bags that contain 10 tulip bulbs per bag. They randomly sample 100 bags of bulbs to find the average number of bulbs for given colors.**

Average Number of Bulbs by Color

Color	Number of Bulbs
Yellow	3
Orange	2
Pink	5

If James plants 5 bags of bulbs, what is the BEST prediction for the number of tulips that will be either yellow or pink?

A. 8

B. 15

C. 25

D. 40

20. **A stack of playing cards contains 4 jacks, 5 queens, 3 kings, and 3 aces. Two cards will be randomly selected from the stack. What is the probability that a queen is chosen and replaced, and then a queen is chosen again?**

A. $\frac{16}{225}$

B. $\frac{2}{21}$

C. $\frac{1}{9}$

D. $\frac{4}{9}$

21. **In a bag, there are 3 red marbles, 1 green marble, and 7 blue marbles. Which expression could be used to find the probability of randomly picking exactly 1 marble of each color, without replacement?**

A. $\frac{1}{11} \times \frac{1}{10} \times \frac{1}{9} \times 6$

B. $\frac{7}{11} \times \frac{3}{11} \times \frac{1}{11} \times 6$

C. $\frac{3}{11} \times \frac{3}{10} \times \frac{3}{9} \times 6$

D. $\frac{1}{11} \times \frac{3}{10} \times \frac{7}{9} \times 6$

22. **Mr. Bonet has a fair coin labeled "heads" and "tails." He will flip the coin 6 times and record his results. What is the probability that the coin will land face-up on "tails" on all six flips?**

A. $\frac{1}{2}$

B. $\frac{1}{6}$

C. $\frac{1}{12}$

D. $\frac{1}{64}$

23. **In a random survey of 300 people about the kind of apples they preferred, 178 said they preferred red apples. Based on these results, how many people out of 4500 would say they prefer red apples?**

A. 1830

B. 2670

C. 3084

D. 4322

24. **Tasha is playing a game with 2 different types of fair geometric objects. One object has 8 faces numbered from 1 to 8. The other has 6 faces labeled M, N, O, P, Q, and R. What is the probability of rolling a number greater than 3 and the letter R on the first roll of both objects?**

A. $\frac{1}{14}$

B. $\frac{5}{48}$

C. $\frac{1}{8}$

D. $\frac{43}{48}$

25. **Jared and his six friends put their names in a bag to randomly select a driver for their weekly carpool. What is the probability that Jared will be selected to be the driver for the upcoming week?**

A. $\frac{1}{7}$

B. $\frac{1}{6}$

C. $\frac{6}{7}$

D. $\frac{7}{7}$

26. **As part of a science project, students observe the behavior of bees at a hive. Over a 15-minute period, 50 bees are observed as they leave the hive. The students note and record the direction each bee travels. They create a table of their results.**

Directions Bees Travel From the Hive

Direction	Number of Bees
North	15
South	20
East	5
West	10

Over a 12-hour period, the students estimate that 2,400 bees will leave the hive. How many of the bees should they expect to travel west?

A. 240
B. 480
C. 720
D. 960

27. **The managers of an airline analyzed a random sample of flights and found that 95% of the flights arrived on time. The airline has 480 flights scheduled for next week. What is the BEST estimate of the number of these flights that will NOT arrive on time?**

A. 5
B. 24
C. 240
D. 456

28. **The ages in years of employees at two different companies are shown below.**

- **Company A: 22, 30, 31, 36, 38, 46, 49, 52**
- **Company B: 48, 55, 67, 67, 69, 70, 75, 77**

Which statement about the mean ages of the employees at the companies is true?

A. The difference between the mean ages of the employees of Company A and Company B is 25 years.

B. The difference between the mean ages of the employees of Company A and Company B is 28 years.

C. The difference between the mean ages of the employees of Company A and Company B is 31 years.

D. The difference between the mean ages of the employees of Company A and Company B is 55 years.

29. **Jenny will randomly select one prize coupon from a jar. The jar contains 9 book coupons, 6 pizza coupons, 27 drink coupons, and 3 computer game coupons that are identical in size and shape. What is the probability that the coupon Jenny selects will be a drink coupon or a computer game coupon?**

A. $\frac{1}{3}$

B. $\frac{1}{2}$

C. $\frac{3}{5}$

D. $\frac{2}{3}$

30. **Chelsea conducted a survey to determine which candidate is leading the race for ninth-grade class president by asking 50 ninth-grade girls in the cafeteria how they would vote in the election. The results are shown in the table.**

Survey Results

Candidate	Number of Potential Votes
Mark	11
Elaine	7
Sammy	15
Ginger	17

Chelsea evaluated the survey results and predicts that, Ginger, will win the election. Which statement BEST explains why Chelsea's prediction may be wrong?

A. Only ninth-grade girls were asked to participate in the survey.

B. The survey did not include all of the ninth graders in the school.

C. Mark and Elaine combined for a greater number of responses than Ginger.

D. Ginger was new to the school and few students would vote for her as class president.

31. **There are 8 boys and 6 girls in the jazz band at Oak Hill High School. The principal randomly selects one student from the jazz band to represent the school in a competition. What is the probability that the selected student is a boy?**

A. $\frac{1}{8}$

B. $\frac{3}{7}$

C. $\frac{4}{7}$

D. $\frac{3}{4}$

32. **A deck of 32 cards contains 8 blue cards, 13 red cards, and 11 yellow cards. What is the probability of randomly selecting a blue card from this deck?**

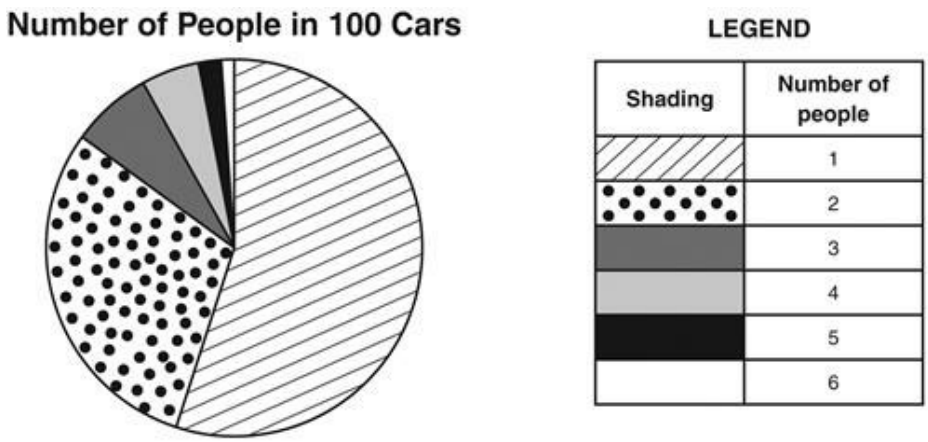
A. $\frac{1}{8}$

B. $\frac{1}{4}$

C. $\frac{1}{3}$

D. $\frac{3}{4}$

33. **In Lot A at the local mall, David counted the number of people who were in each of the first 100 cars that parked. His results are shown in the graph below.**



Based on the data, what is the probability that the next car that parks in Lot A will have exactly 2 people in it?

A. $\frac{1}{2}$

B. $\frac{3}{10}$

C. $\frac{1}{20}$

D. $\frac{17}{20}$

34. **A box holds a mix of good and bad light bulbs. There were 8 good bulbs and 4 bad bulbs. What is the likelihood that a good bulb is selected on one try?**

A. $\frac{1}{12}$

B. $\frac{1}{4}$

C. $\frac{2}{3}$

D. $\frac{1}{2}$

35. **Latoya is using two number cubes during a probability experiment. The faces of each cube are numbered 1 through 6. What is the probability that Latoya will get an outcome of a number less than 3 on the top of each cube on one roll of the pair of cubes?**

A. $\frac{1}{9}$

B. $\frac{1}{4}$

C. $\frac{1}{3}$

D. $\frac{2}{3}$

36. **Joey has a spinner with 10 colored sections of equal size. This spinner has 1 red, 4 green, and 5 blue sections. If Joey spins the arrow of this spinner, what is the probability that it lands on the color blue?**

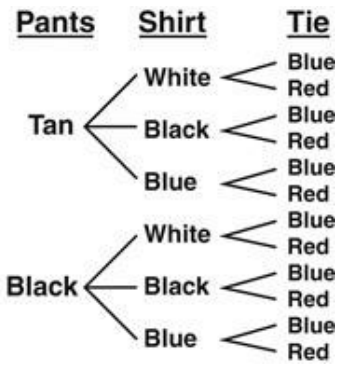
A. $\frac{1}{10}$

B. $\frac{1}{5}$

C. $\frac{2}{5}$

D. $\frac{1}{2}$

37. **Victor must choose one pair of pants, one shirt, and one tie to wear to work. His possible choice combinations are shown in the tree diagram below.**



If Victor chooses these work clothes at random, what is the probability that he will choose tan pants, a white shirt, and a red tie?

A. $\frac{1}{12}$

B. $\frac{1}{4}$

C. $\frac{3}{7}$

D. $\frac{4}{9}$

38. **Billy rolled a fair number cube that is numbered 1 through 6. What is the probability that he rolled a number less than 3?**

A. $\frac{1}{6}$

B. $\frac{1}{3}$

C. $\frac{1}{2}$

D. $\frac{2}{3}$

39. **An animal game uses a bag that contains 200 identical circle tiles.**

- 60 tiles have pictures of fish
- 40 tiles have pictures of birds
- 100 tiles have pictures of mammals

If a tile is randomly drawn from the bag without looking, what is the probability of drawing a fish tile?

A. 0.2
B. 0.3
C. 0.5
D. 0.6

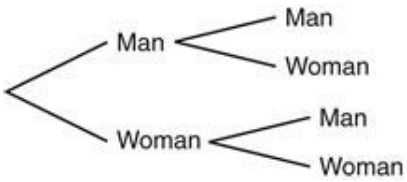
40. **Michelle has a fair number cube. Each face has a different number from 1 through 6. She will roll the number cube twice. What is the probability that she will roll an even number on the first roll and a 5 on the second roll?**

A. $\frac{1}{36}$
B. $\frac{1}{12}$
C. $\frac{1}{4}$
D. $\frac{2}{3}$

41. **Fred has a bag containing 2 red, 8 blue, 5 green, and 10 white marbles that are all the same size and shape. What is the probability of randomly choosing a white marble on the first pick?**

A. $\frac{2}{25}$
B. $\frac{1}{5}$
C. $\frac{8}{25}$
D. $\frac{2}{5}$

42. **A group of 5 men and 5 women are applying for a job at a local company. Each of the 10 job candidates has the same chance of receiving a job offer.**



Using the diagram, what is the probability that the company will hire two women for two positions?

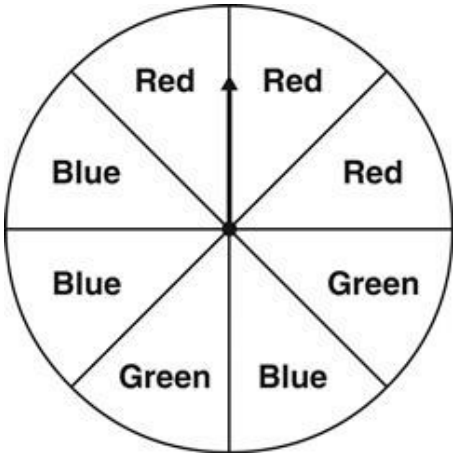
A. $\frac{1}{4}$

B. $\frac{1}{2}$

C. $\frac{3}{4}$

D. 1

43. **The spinner is divided into eight equal sections.**



What is the probability that the spinner will land on a green section?

A. $\frac{1}{8}$

B. $\frac{1}{4}$

C. $\frac{1}{3}$

D. $\frac{1}{2}$

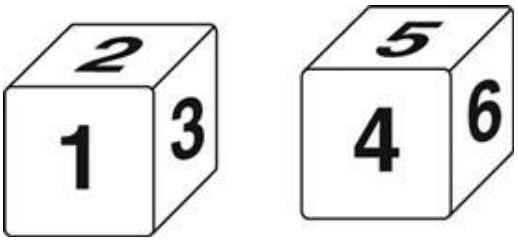
44. **A basketball player made 48 out of 64 free throws. This gave her a free throw average of 0.750. Based on this average, what is the probability of the player making her next free throw?**

A. 25%
B. 48%
C. 50%
D. 75%

45. **Emily can hit a target with a softball 12 times out of 18 total throws. Based on that rate, what is the approximate probability she will hit the target on her next throw?**

A. 12%
B. 18%
C. 50%
D. 67%

46. **Simon has two fair number cubes. Each cube has the numbers 1 through 6 on its sides.**



Simon rolls both number cubes at the same time and finds the sum of the numbers on the sides facing up. Which sum is NOT possible?

A. 1
B. 2
C. 6
D. 12

47. David will toss one coin three times. What is the probability that the coin will land on heads only one time?

A. $\frac{1}{8}$

B. $\frac{1}{3}$

C. $\frac{3}{8}$

D. $\frac{1}{2}$

48. The table shows the number of points each seventh-grade class earned for selling popcorn and magazines.

Points Earned from Sales

Class	Popcorn	Magazines
Ms. Lawton	328	345
Mr. Morris	290	357
Mrs. Gomez	411	248
Mr. Chan	343	310

Which class earned the most points from the two events?

A. Ms. Lawton's class

B. Mr. Morris's class

C. Mrs. Gomez's class

D. Mr. Chan's class

49. Mary and Jacob compared their math quiz scores for the first grading period. Their scores are listed in the table below.

Mary's Scores	83	86	90	92	87	78	93	92	84
Jacob's Scores	84	83	86	90	91	92	79	94	86

Which statement is true?

A. The mean test scores of both students is the same.

B. The median test scores of both students is the same.

C. The mean of Mary's test scores is less than the mean of Jacob's test scores.

D. The median of Mary's test scores is less than the median of Jacob's test scores.

50. The weights, in pounds, of nine randomly selected students from two different seventh-grade classes were recorded.

Mr. Roan's Class

82	96	77
82	83	84
85	75	91

Mrs. Yancey's Class

90	92	79
83	95	82
83	98	73

Which is true when comparing the weights of the students in the two different classes?

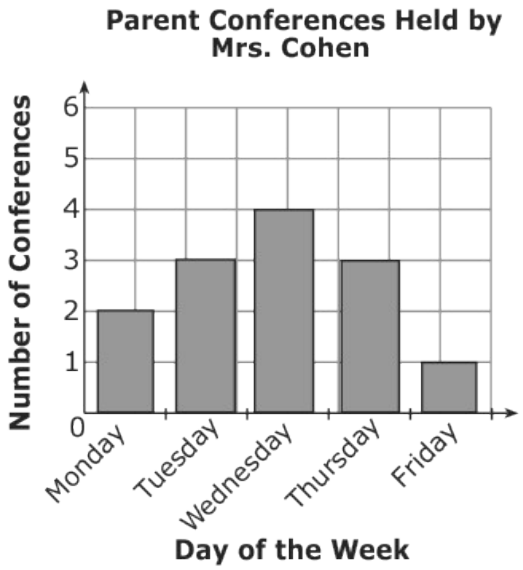
A. The mean weights of both classes are the same.

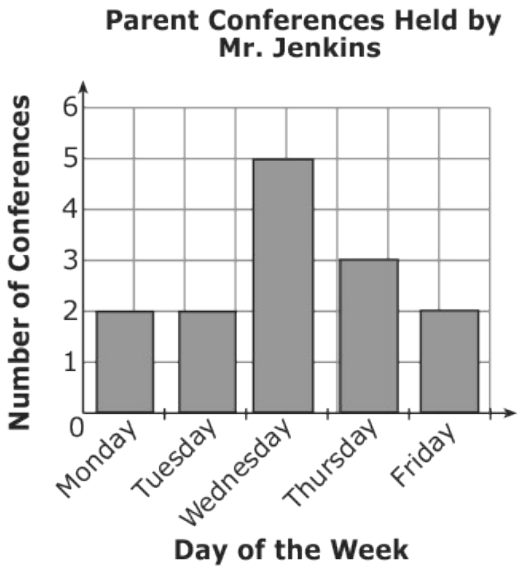
B. The median weights of both classes are the same.

C. The median weight in Mr. Roan's class is less than the median weight in Mrs. Yancey's class.

D. The mean weight of Mr. Roan's class is greater than the mean weight of Mrs. Yancey's class.

51. The graphs below show the number of parent conferences held by Mrs. Cohen and Mr. Jenkins.





On which day did the teachers have the fewest conferences combined?

A. Monday

B. Tuesday

C. Thursday

D. Friday

52. Central Middle School had a candy sale for 10 days. Beverly and Daniel recorded their daily sales in the chart below.

Number of Candy Bars Sold

Day	Beverly	Daniel
1	19	20
2	21	13
3	14	16
4	17	17
5	20	22
6	15	14
7	24	12
8	17	16
9	16	18
10	17	12

Based on the chart, which statement is true?

A. The mean number of candy bars sold by Beverly was greater than the mean number of candy bars sold by Daniel.

B. The mean number of candy bars sold by Beverly was less than the mean number of candy bars sold by Daniel.

C. The median number of candy bars sold by Beverly was less than the median number of candy bars sold by Daniel.

D. The median number of candy bars sold by Beverly and Daniel was the same.