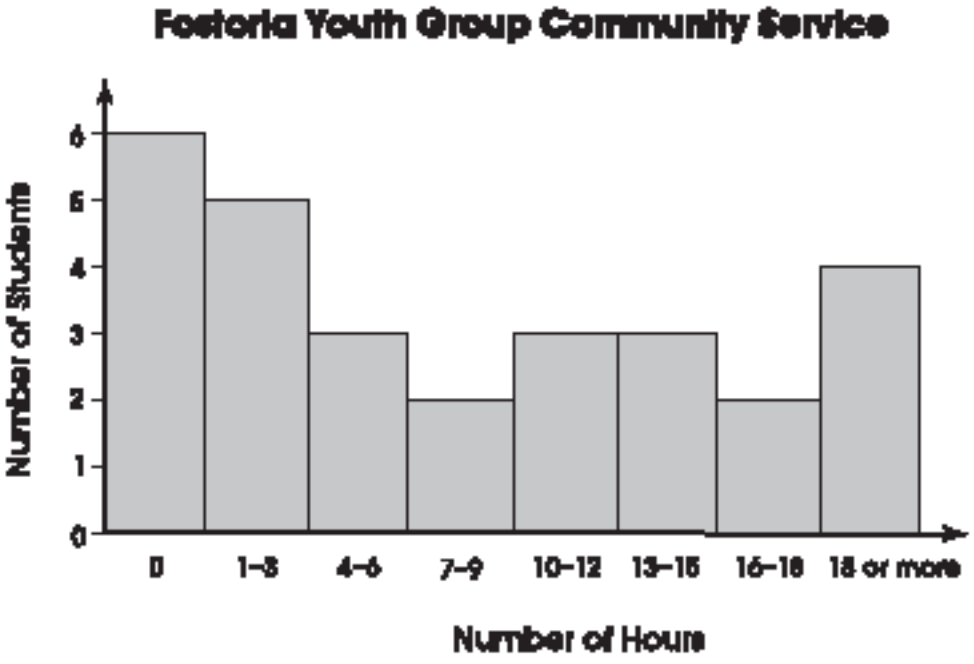
Question 6
Benchmark A
Spring 2003

6. Last month members of a Fostoria youth group spent time doing community service. The graph shows the numbers of students who contributed certain hours of service.

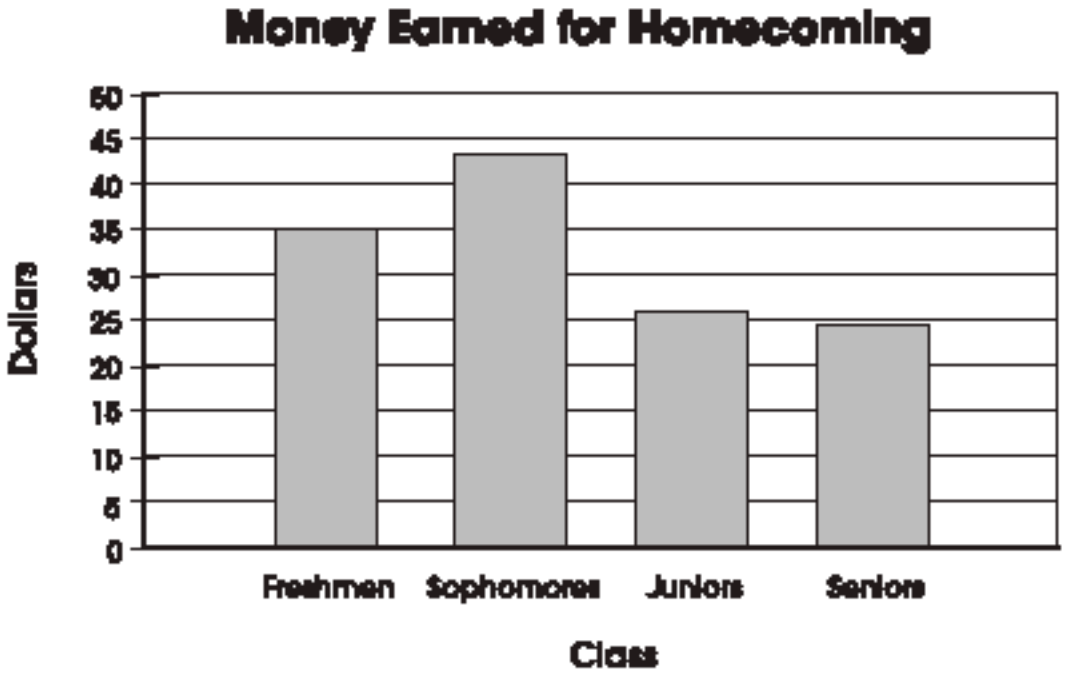


How many members spent 10 or more hours in community service last month?

A. 3
B. 4
C. 9
D. 12

Question 16
Benchmark A
Spring 2003

16. The students at Watertown High School are raising money for homecoming. The graph shows the amount of money each class has raised so far.



About what percentage of the money raised did the sophomore class earn?

A. 25%

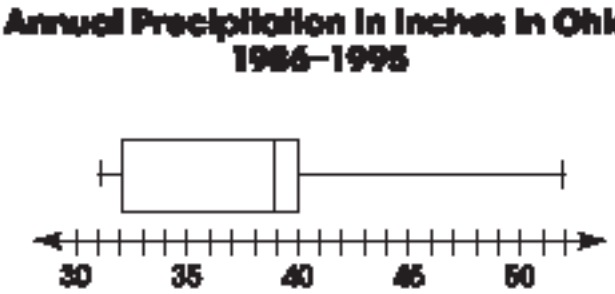
B. 33%

C. 43%

D. 50%

Question 37
Benchmark A
Spring 2003

37. This box-and-whisker plot represents the average annual precipitation in Ohio over a ten-year period.

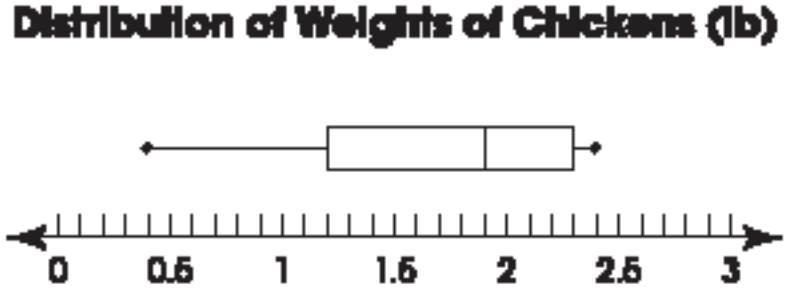


Which of these is the median rainfall for the ten-year period?

A. 35.5 inches
B. 39.1 inches
C. 40.0 inches
D. 42.6 inches

Question 2
Benchmark A
Spring 2004

2. The box-and-whisker plot below describes the weights of a sample of 100 chickens.



What statement can be made about the data, using the graph alone?

A. The range of the weights is 3 lb.

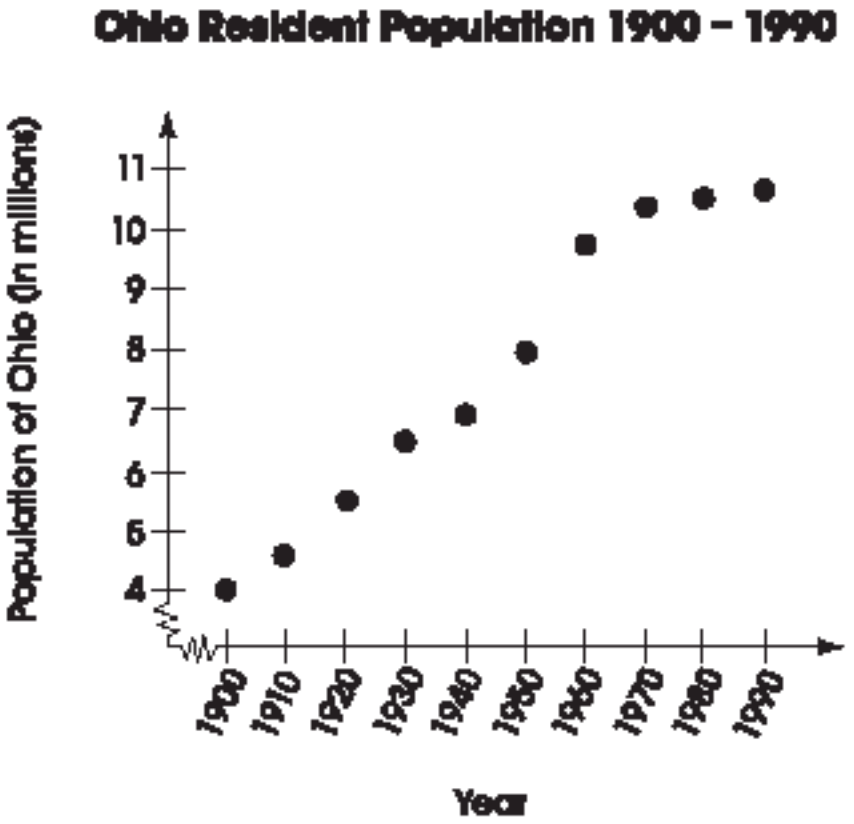
B. The median weight is less than 2 lb.

C. Twenty-five percent of the chickens weigh less than 1 lb.

D. Fifty percent of the chickens weigh more than 2 lb.

Question 34
Benchmark A
Spring 2004

34. The graph shows the population of Ohio from 1900 to 1990.



Based on the data, in which decade did the population of Ohio increase the most?

A. 1910 to 1920

B. 1940 to 1950

C. 1950 to 1960

D. 1960 to 1970

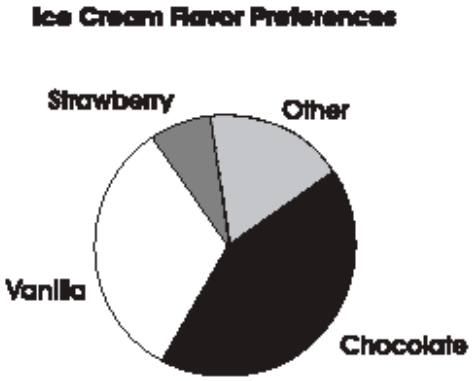
Question 22
Benchmark A
Spring 2005

22. Ice cream vendors at the county fair gathered data about the various ages of people and their preferences for different ice cream flavors. The data are summarized in the table.

Ice Cream Preferences

Age Group	Chocolate	Vanilla	Strawberry	Other	Total
Under 12 years	30	41	4	7	82
12 to 20 years	52	39	9	21	121
21 to 45 years	31	25	12	47	115
More than 45 years	8	11	22	7	48

The circle graph below represents the flavor preferences for one of the four age groups.



Which age group's preferences are represented in the graph?

A. under 12

B. 12 to 20

C. 21 to 45

D. over 45

Question 29
Benchmark B
Spring 2004

29. The table shows the number of people who speak each of the six most common languages of the world.

Number of People (in millions)

Mandarin	English	Hindi	Spanish	Russian	Arabic
900	430	320	310	280	185

Which type of graph is appropriate to display the data in the table?

A. bar graph

B. box-and-whisker plot

C. line graph

D. scatterplot

Question 28
Benchmark B
Spring 2005

28. Susan entered a highway at 1:00. On the highway, she had driven a total of 32 miles by 1:30, 61 miles by 2:00, and 125 miles by 3:00.

Which kind of data display would be an appropriate way to show how Susan's total driving distance varied with time?

A. line graph

B. circle graph

C. stem-and-leaf plot

D. box-and-whisker plot

Question 6
Benchmark C
Spring 2004

6. A set of data contains 10 negative numbers and 4 positive numbers. Which one of these statements must be true?

   A. The mean is a negative number.

   B. The median is a negative number.

   C. The mode is a negative number.

   D. The range is a negative number.

Question 36
Benchmark C
Spring 2005

36. The average salary for all department store workers in a certain area is $255 a week. The weekly salaries of the 7 employees in the Acme Department Store are given in the table below.

Acme Employees' Salaries

Employee Number	Salary
Employee 1	$240
Employee 2	$245
Employee 3	$245
Employee 4	$250
Employee 5	$252
Employee 6	$260
Employee 7	$420

In your **Answer Document**, determine the measures of center (mean, median and mode) of the 7 salaries.

Specify which of these measures of center the management could use to represent the salaries in an argument against pay increases. Explain your answer.

Specify which of these measures of center the labor union could use to represent the salaries in an argument for pay increases. Explain your answer.

Question 22
Benchmark D
Spring 2003

22. Consider the following scores:

12, 56, 62, 66, 74, 83, 88, 90, 93, 96

If the outlier, 12, is removed from the set above, what is the approximate increase in the mean of the remaining scores?

A. 3
B. 7
C. 12
D. 84

Question 24
Benchmark D
Spring 2003

24. The mean weight of the five returning members for Cardinal High School's wrestling team is 168 pounds. Three freshman wrestlers joined the team. If their weights are 140, 172 and 168 pounds, what is the mean weight of this year's team?

A. 160 pounds
B. 162 pounds
C. 165 pounds
D. 168 pounds

Question 31
Benchmark D
Spring 2004

31. Aaron wants the mean of his 5 geometry test scores to be at least 90%. His scores on the first four tests are 85%, 83%, 96% and 91%. What is the minimum score Aaron can earn on the fifth test to meet his goal?

A. 89%
B. 90%
C. 95%
D. 100%

Question 19
Benchmark D
Spring 2005

19. Aaron wants the mean of his 5 geometry test scores to be at least 90%. His scores on the first four tests are 85%, 83%, 96%, and 91%. Which of the following is the minimum score Aaron can earn on the fifth test to meet his goal?

A. 89%

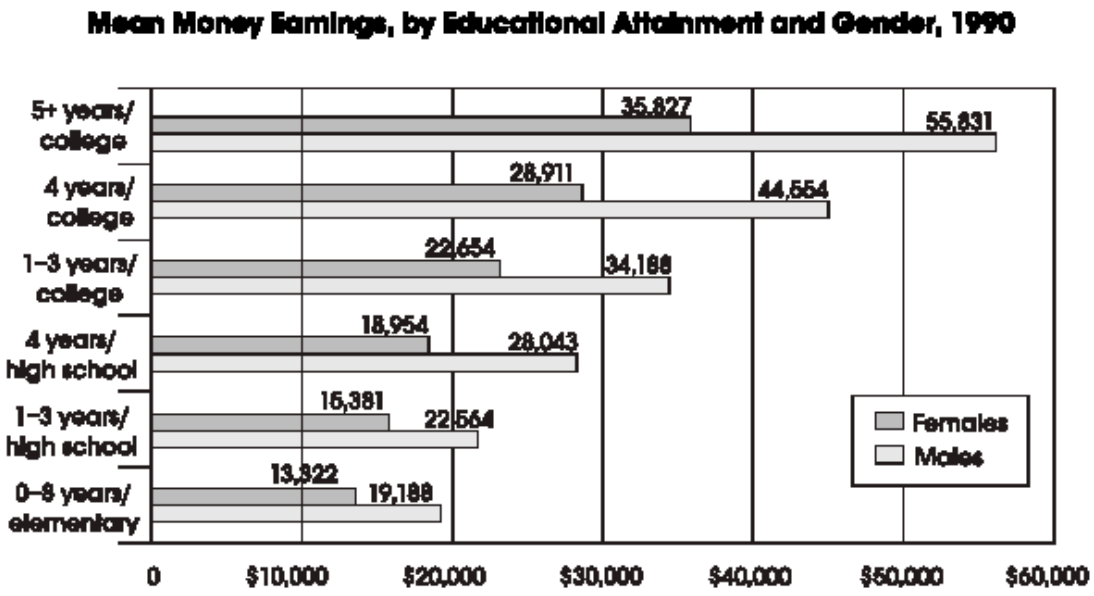
B. 90%

C. 95%

D. 100%

Question 34
Benchmark E
Spring 2003

34. The graph below compares earnings categorized by level of schooling for males and females.



Which of the following statements is true based on the graph?

A. Gender does not appear to have an impact on earnings.

B. Education level does not appear to have an impact on earnings.

C. The more educated a female, the wider the earnings gap between her and her male counterpart.

D. As education level increases, the earnings gap narrows between males and females.

Question 16
Benchmark G
Spring 2004

16. George wants to conduct a survey to determine the types of music that the students want at a school dance.

Which sample population should George survey to represent the entire student body?

A. survey the teachers

B. survey the captain from each sports team

C. randomly survey two people from each homeroom class

D. randomly survey 50 people from the freshman class

Question 39
Benchmark G
Spring 2004

39. A town is conducting a survey to determine if the residents would use a new recreation facility. The survey must represent all different types of people who live within the town. Three different survey locations were proposed: a golf course, a day care center and a shopping mall. Every fifth person at the location would be asked to take part in the survey.

In your **Answer Document**, determine which of the three proposed survey locations would provide the least amount of bias. Show your work or provide an explanation for your answer.

Question 39
Benchmark G
Spring 2005

39. Jeffrey wants to determine the favorite professional sport of the students in his high school.

Which sample should Jeffrey use?

A. a random sample of the students in the chess club

B. a random sample of the students on the football team

C. a random sample of the students on the official school roster

D. a random sample of the students in the library during fifth period

Question 41
Benchmark H
Spring 2003

41. Alfredo has forgotten the three-digit code to the lock on his suitcase. Alfredo remembered that the first digit is 3 and the last digit is either 2 or 4. The middle digit could be any number from 0 through 9 inclusive. What is the greatest number of three-digit codes Alfredo might have to try in order to be sure to open his suitcase?

A. 10

B. 12

C. 20

D. 60

Question 43
Benchmark H
Spring 2004

43. Rene is selecting a menu for a party. He plans to select a meal that includes one main dish, one vegetable and one dessert from the following list of choices.

Party Menu		
Main Dish	**Vegetables**	**Desserts**
stuffed chicken breast	Italian green beans	peach cobbler
grilled salmon	corn on the cob	German chocolate cake
beef tips	glazed carrots	banana pudding
	baked potato	ice cream with cookies
		strawberry shortcake

How many different meals can Rene select?

A. 12

B. 32

C. 35

D. 60

Question 17
Benchmark H
Spring 2005

17. Mara packed a blue denim shirt, a red striped shirt, a red plaid shirt, and a black tank top to take on vacation. She also packed one pair of denim shorts, one pair of white shorts and one pair of beige shorts. Mara took two different pairs of shoes with her.

    How many different combinations of outfits with one shirt, one pair of shoes and one pair of shorts could Mara use on her vacation?

    A. 12

    B. 24

    C. 84

    D. 504

Question 30
Benchmark J
Spring 2003

30. To demonstrate probabilities, a mathematics teacher had students draw marbles from a bag which contained 6 yellow marbles and 14 blue marbles. During class, the bag was dropped, and 2 yellow marbles and 2 blue marbles were lost.

    In your **Answer Document**, tell whether the loss of marbles changes the probability of drawing a blue marble from the bag. If so, was the probability increased or decreased? Support your answer by calculating the probability for each situation.

Question 19
Benchmark J
Spring 2004

19. Carlos and Tiesha empty a bag of 100 colored candies and count the number of each color, as shown in the following chart.

Number of Candies of Each Color

Color	Number
Orange	20
Red	10
Brown	30
Green	10
Yellow	15
Blue	15

They return all the candies to the bag and shake the bag. Carlos removes 5 candies, 2 of which are blue. Tiesha then pulls out one candy.

What is the probability that Tiesha pulls out a blue candy?

A. 6.67%

B. 13.68%

C. 15.00%

D. 15.79%

Question 35
Benchmark J
Spring 2004

35. The table below shows the number of fish caught each day last week.

Number of Fish Caught Each Day

Day	Number of Fish Caught
Monday	4
Tuesday	0
Wednesday	3
Thursday	2
Friday	0
Saturday	0
Sunday	5

If one day of that week is chosen at random, what is the probability that a minimum of one fish was caught that day?

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

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

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

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

Question 42
Benchmark J
Spring 2005

42. The following numbers are written on individual pieces of paper and placed in a bag.

Four numbers are randomly drawn from the bag and are placed in the order in which they were drawn to form a four-digit number.

In your **Answer Document**, determine the probability that a number created in this way has a value greater than 6,000. Show your work or provide an explanation to support your answer.

Question 10
Benchmark K
Spring 2003

10. Anne, Brett, Carl, and Danielle each rolled an identical small wooden cube. Each face of the cube is painted red, yellow or blue. The color of the top face is recorded each time the cube is rolled. The table below shows the results for three of the students after each had rolled the cube varying numbers of times.

For question 10, respond completely in your **Answer Doument**.

Result of Rolling Cubes

Name	Number of rolls	Number of times red face up	Number of times yellow face up	Number of times blue face up
Anne	10	3	4	3
Brett	30	4	14	12
Carl	60	12	27	21

In your **Answer Document,** predict the number of the faces on the cube that are red, the number that are yellow, and the number that are blue. Show your work or provide an explanation for how you predicted the number of faces that are each color.

Danielle will roll the cube 75 times. Predict the number of times the cube will land with red as the top face, yellow as the top face, and blue as the top face. Show your work or provide an explanation for your predictions.