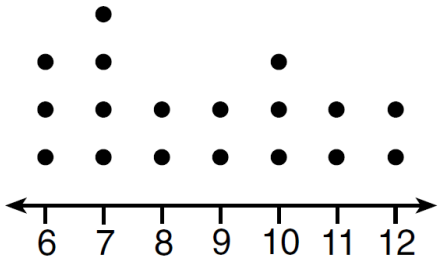
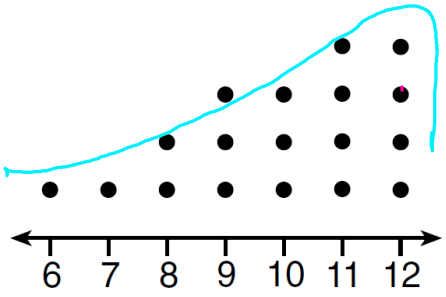
1. Noah conducted a survey on sports participation. He created the following two dot plots to represent the number of students participating, by age, in soccer and basketball.



Soccer Players' Ages



Basketball Players' Ages

Standard distribution or bell curve

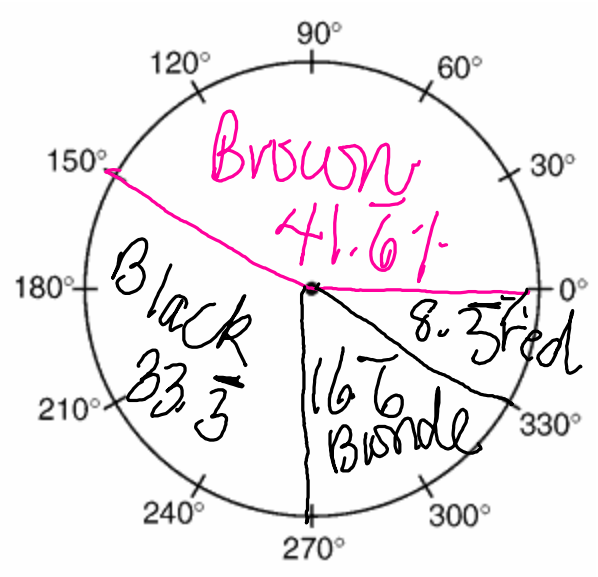
left skewed

right skew

Which statement about the given data sets is correct?

A) The data for soccer players are skewed right.
B) The data for soccer players have less spread than the data for basketball players.
C) The data for basketball players have the same median as the data for soccer players.
D) The data for basketball players have a greater mean than the data for soccer players.

2. In a class of 24 students, 10 have brown hair, 8 have black hair, 4 have blond hair, and 2 have red hair. On the accompanying diagram, construct a circle graph to show the students' hair color.



Brown $\frac{10}{24} \times 360 = 150°$

Black $\frac{8}{24} \times 360 = 120°$

blonde $\frac{4}{24} \times 360 = 60°$

red $\frac{2}{24} \times 360 = 30°$

3. Jorge made the accompanying stem-and-leaf plot of the weights, in pounds, of each member of the wrestling team he was coaching.

Stem	Leaf
10	9
11	0
12	3 8
13	2 4 4 6 8
14	1 3 5 5 9
15	2 3 7 7 9
16	1 3 7 8 8 8 9
17	3 8

Key: 16 | 1 = 161

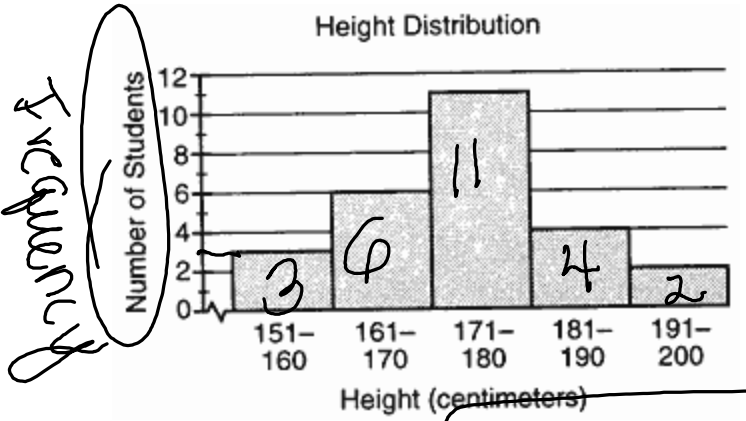
What is the mode of the weights?

A) 145 B) 150 C) 152 D) 168

2 1 3

Bimodal - 2 modes

4. The accompanying histogram shows the height distribution for students in a high school mathematics class. What is the total number of students in the class?



26 students

5. Which statement is true for the following group of data?

11, 13, 18, 19, 19

A) mean > median B) mean > mode
C) mode = median D) median < mode

median = 18 mean = 16
mode = 19

6. Christopher looked at his quiz scores shown below for the first and second semester of his Algebra class.

Semester 1: 78, 91, 88, 83, 94
Semester 2: 91, 96, 80, 77, 88, 85, 92

Which statement about Christopher's performance is correct?

A) The interquartile range for semester 1 is greater than the interquartile range for semester 2.
B) The mdian score for semester 1 is greater than the median score for semester 2.
C) The mean score for semester 2 is greater than the mean score for semester 1.
D) The third quartile for semester 2 is greater than the third quartile for semester 1.

mean =
S1 86.8
S2 87

S1: 78, 83, 88, 91, 94 → 80.5 (Q1), median (Q2), 92.5 (Q3)

S2: 77, 80, 85, 88, 91, 92, 96 → Q1, Q2, Q3

$Q_3 - Q_1$
$92.5 - 60.5 = 12$

$92 - 80 = 12$

7. What is the median for the following set of data?

x_i	f_i
20	2
21	5
23	4
24	4

frequency

15

median is 23

add all the frequencies; if odd, add 1 and divide by 2
if even, just divide by 2 and the median is between the integer below the answer you got and the one above it. (or that #)

20 20 21 21 21 21 21 . . . .

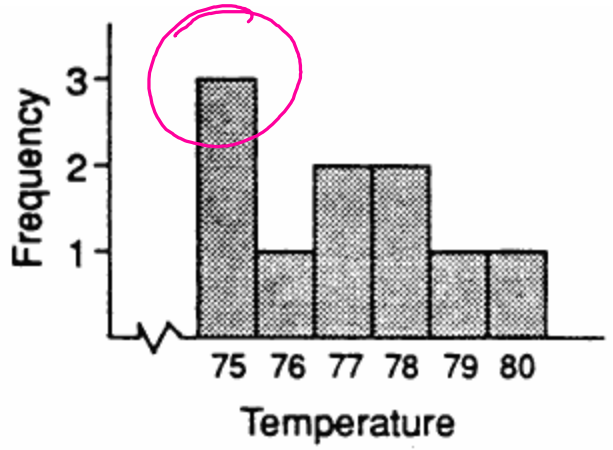
8. The exact average of a set of six test scores is 92. Five of these scores are 90, 98, 96, 94, and 85. What is the other test score?

A) 92 B) 91 C) 89 D) 86

$\frac{463+91}{6}$

$\frac{463+89}{6}$

9. The histogram below shows the distribution of temperatures for ten days. Which temperature is the mode?



75°

10. During the last 15 years of his baseball career, Andrew hit the following number of home runs each season.

35, 24, 32, 36, 40 32, 40, 38, 36, 33, 11, 20, 19, 22, 8

8 11 19 20 22 24 32 32 33 35 36 36 38 40 40

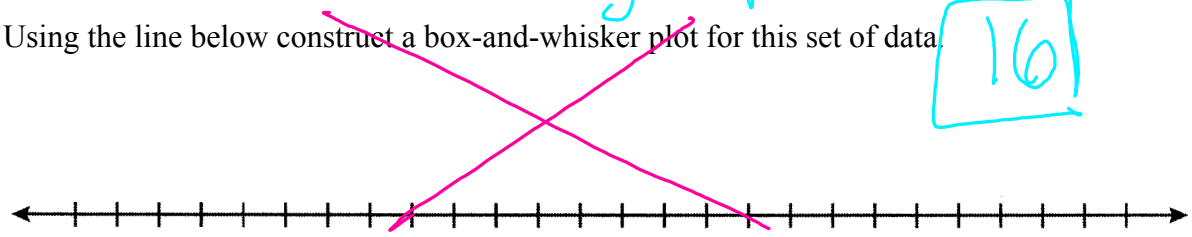
min Q1 Q3

State and label the values of the minimum, 1st quartile, median, 3rd quartile, and maximum.

What is the range of the data? 40 − 8 = 32

State the value of the Interquartile Range: $Q_3 - Q_1 = 36 - 20 = 16$

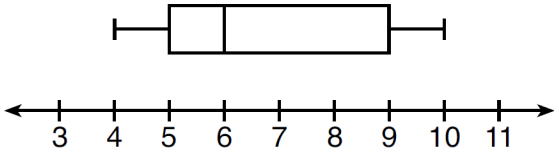
Using the line below construct a box-and-whisker plot for this set of data.



11. Below are two representations of data.

A: 2, 5, 5, 6, 6, 6, 7, 8, 9

B:



Which statement about *A* and *B* is true?

A) median of *A* > median of *B*
B) range of *A* < range of *B*
C) upper quartile of *A* < upper quartile of *B*
D) lower quartile of *A* > lower quartile of *B*

12. Base your answer to the following question on the information and table below.

450 men and women were surveyed on their preference of either owning a dog or a cat. The following frequency table shows the difference between the preferences of males and females. However, some values are missing from the table.

	Dogs	Cats	Totals
Male	158	E	F
Female	101	116	217
Totals	259	D	450

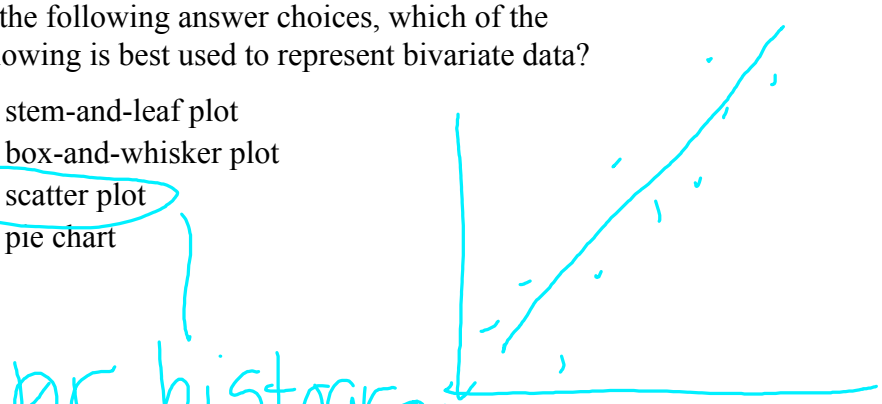
What value should be placed in the cell labeled D?

$F + 217 = 450$

191

13. Of the following answer choices, which of the following is best used to represent bivariate data?

A) stem-and-leaf plot
B) box-and-whisker plot
C) scatter plot
D) pie chart



or histogram, frequency tables

14. In which of the following situations would one use analysis of bivariate data?

A) A doctor measures the weight and height of each of his patients.
B) A farmer keeps track of the number of chickens he has every day for thirty days.
C) A teacher has a record of his students' grades in a notebook.
D) A store owner records the amount of sales his store makes for each day of the week that it is open.

15. The school newspaper surveyed the student body for an article about club membership. The table below shows the number of students in each grade level who belong to one or more clubs.

	1 Club	2 Clubs	3 or More Clubs
9th	90	33	12
10th	125	12	15
11th	87	22	18
12th	75	27	23

25%

If there are 180 students in ninth grade, what percentage of the ninth grade students belong to more than one club?

33 + 12 = 45

$\frac{45}{180} = \frac{X}{100}$

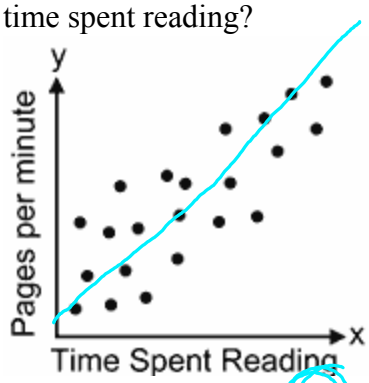
16. The following table shows data on seniors' plans for the future and whether or not they have taken at least one Advanced Placement (AP) course during their high school careers. In a certain population, 3000 seniors were surveyed.

	Plans to attend college	Does not plan to attend college	Totals
Has taken an Advanced Placement course	$\frac{1700}{1800} = 0.944$	$\frac{1}{1800}$ X .056	$\frac{1800}{1800} = 1.000$
Has not taken an Advanced Placement course	Y	$\frac{800}{1200} = 0.667$	$\frac{1200}{1200} = 1.000$
Totals	$\frac{2100}{3000} = 0.700$	$\frac{900}{3000} = 0.300$	$\frac{3000}{3000} = 1.000$

What should be presented in place of X?

$\frac{1700}{1800} + X = \frac{1800}{1800}$

17. According to the following scatter plot, what type of relationship exists between pages per minute and time spent reading?



A) negative linear
B) positive linear
C) quadratic
D) exponential

18. Analysis of data from a statistical study shows a linear relationship in the data with a correlation coefficient of –0.524. Which statement best summarizes this result?

A) There is a strong positive correlation between the variables.
B) There is a strong negative correlation between the variables.
C) There is a moderate positive correlation between the variables.
D) There is a moderate negative correlation between the variables.

19. Which value of r represents data with a strong positive linear correlation between two variables?

A) 0.89 B) 0.34 C) 1.04 D) 0.01