

Chapter 2 Organizing the Data

1. A cross-tabulation of serious illnesses is a table in which the distribution of illnesses is
- presented separately for the categories of a second variable, such as gender, age, or race.
 - presented in a table.
 - presented in a graph.
 - presented in a pie chart.

Answer: (a) presented separately for the categories of a second variable, such as gender, age, or race.

2. Frequency distributions can be used to
- compare gender differences in violent criminal behavior.
 - display the grades on a midterm examination for all students in a sociology course.
 - compare attitudes of college students and their parents regarding war.
 - show attitudes of all students on a campus regarding war.
 - all of the above.

Answer: (e) all of the above.

3. By definition, class intervals contain more than one
- score value
 - score
 - respondent
 - category

Answer: (a) score value

4. A cross-tabulation would be useful for comparing
- the amount of attention – a little, a moderate amount, or a great deal – a particular teacher gives to two different students.
 - the amount of attention – a little, a moderate amount, or a great deal – a particular teacher gives to 30 black and 30 white students.
 - the amount of attention – a little, a moderate amount, or a great deal – a particular teacher gives 30 students.
 - the amount of attention – a little, a moderate amount, or a great deal – a particular teacher gives to honor students.

Answer: (b) the amount of attention – a little, a moderate amount, or a great deal – a particular teacher gives to 30 black and 30 white students.

5. A frequency distribution of the number of defendants sentenced to death in each of the 30 states during the year 2009 would be depicted best in the form of a
- a. histogram
 - b. bar graph
 - c. frequency polygon
 - d. pie chart

Answer: (c) frequency polygon

6. The direction of skewness is determined by the relative position of the
- a. peak of distribution.
 - b. midpoint of the distribution.
 - c. tail of the distribution.
 - d. class intervals of the distribution.

Answer: (c) tail of the distribution.

7. To show trends in birth rate from 1980 to the present, by year, a researcher would probably use a
- a. pie chart
 - b. bar graph
 - c. line chart
 - d. frequency polygon

Answer: (c) line chart

8. From the following table representing achievement of 173 television viewers and 183 non-viewers, find (a) the percent of nonviewers who are high achievers, (b) the percent of viewers who are high achievers, (c) the proportion of nonviewers who are high achievers, and (d) the proportion of viewers who are high achievers.

Achievements for Television Viewers and Nonviewers		
Achievement	Viewing Status	
	Nonviewers	Viewers
High achievers	93	46
Low achievers	<u>90</u>	<u>127</u>
Total	183	172

Answer:

- a. The percent of nonviewers who are high achievers is determined by dividing the number of high achieving nonviewers by the total number of nonviewers and multiplying the result by 100 in order to transform it into a percentage:

$$93 / 183 = 0.508$$

$$0.508 * 100 = 50.8\%$$

- b. The percent of viewers who are high achievers is determined by dividing the number of high achieving viewers by the total number of viewers and multiplying the result by 100 in order to transform it into a percentage:

$$46 / 172 = 0.266$$

$$0.266 * 100 = 26.6\%$$

- c. The proportion of nonviewers who are high achievers is determined by dividing the number of high achieving nonviewers by the total number of nonviewers:

$$93 / 183 = 0.508$$

$$P = 0.51$$

- d. The proportion of viewers who are high achievers is determined by dividing the number of high achieving viewers by the total number of viewers:

$$46 / 172 = 0.267$$

$$P = 0.27$$

9. From the following table representing family structure for black and white children in a particular community, find (a) the percent of black children having two-parent families, (b) the percent of white children having two-parent families, (c) the proportion of black children having two-parent families, and (d) the proportion of white children having two-parent families.

Family Structure for Black and White Children		
Family Structure	Race of Child	
	Black	White
One parent	53	59
Two parents	<u>60</u>	<u>167</u>
Total	113	226

Answer:

- a. The percent of black children having two-parent families is determined by dividing the number of black children with two-parent families by the total number of black children and multiplying the result by 100 in order to transform it into a percentage:

$$60 / 113 = 0.531$$

$$0.531 * 100 = 53.1\%$$

- b. The percent of white children having two-parent families is determined by dividing the number of white children with two-parent families by the total number of white children and multiplying the result by 100 in order to transform it into a percentage:

$$167 / 226 = 0.739$$

$$0.739 * 100 = 73.9\%$$

- c. The proportion of black children having two-parent families is determined by dividing the number of black children with two-parent families by the total number of black children:

$$60 / 113 = 0.531$$

$$P = 0.53$$

- d. The proportion of white children having two-parent families is determined by dividing the number of white children with two-parent families by the total number of white children:

$$167 / 226 = 0.739$$

$$P = 0.74$$

10. From the following table illustrating the handedness of a random sample of men and women, find (a) the percent of men who are left-handed, (b) the percent of women who are left-handed, (c) the proportion of men who are left-handed and (d) the proportion of women who are left-handed. (e) What can you conclude about gender and the prevalence of left-handedness?

Handedness of Men and Women		
Handedness	Gender	
	Male	Female
Left-handed	15	8
Right-handed	<u>86</u>	<u>114</u>
Total	101	122

Answer:

- a. The percent of men who are left-handed is determined by dividing the number of left-handed men by the total number of men and multiplying the result by 100 in order to transform it into a percentage:

$$15 / 101 = 0.149$$

$$0.149 * 100 = 14.9\%$$

- b. The percent of women who are left-handed is determined by dividing the number of left-handed women by the total number of women and multiplying the result by 100 in order to transform it into a percentage:

$$8 / 122 = 0.066$$

$$0.066 * 100 = 6.6\%$$

- c. The proportion of men who are left-handed is determined by dividing the number of left-handed men by the total number of men:

$$15 / 101 = 0.149$$

$$P = 0.15$$

- d. The proportion of women who are left-handed is determined by dividing the number of left-handed women by the total number of women:

$$8 / 122 = 0.066$$

$$P = 0.07$$

- e. Left-handedness is more prevalent among men.

11. A researcher studying the prevalence of alcohol use among seniors in a particular high school asked 45 of these youths how many drinks they had consumed in the last week. Convert the distribution containing four class intervals, and (a) determine the size of the class intervals, (b) indicate the upper and lower limits of each class interval, (c) identify the midpoint of each class interval, (d) find the percentage for each class interval, (e) find the cumulative frequency of each class interval, and (f) find the cumulative percentage for each class interval.

Number of Drinks	<i>f</i>
7	5
6	9
5	6
4	11
3	4
2	3
1	3
0	4
<i>N</i> = 45	

Answer:

Number of Drinks	<i>f</i>
6-7	14
4-5	17
2-3	7
0-1	7
<i>N</i> = 45	

a.

$$\begin{aligned}
 i &= U - L \\
 &= 7.5 - 6.5 \\
 &= 2
 \end{aligned}$$

b. 5.5-7.5, 3.5-5.5, 1.5-3.5, -.5-1.5

c. *m*: 6.5, 4.5, 2.5, 0.5

d.

Percentage for class interval 6 – 7 = $(14 / 45) * 100 = 31.1\%$

Percentage for class interval 4-5 = $(17 / 45) * 100 = 37.8\%$

Percentage for class interval 2-3 = $(7 / 45) * 100 = 15.6\%$

Percentage for class interval 0-1 = $(7 / 45) * 100 = 15.6\%$

e. cf: 45,31,14,7

f. c%: 100.0, 69.0, 31.2,15.6

12. The Psychopathy Checklist – Revised (PCL—R) is an assessment tool used to identify psychopaths, with scores ranging from 0 to 40 (a score of 30 or higher being indicative of psychopathy). A forensic psychologist interested in the prevalence of psychopaths in a prison administered the PCL—R to 74 random prison inmates and obtained the following distribution of scores. Convert this into a grouped frequency distribution containing five class intervals, and (a) determine the size of the class intervals, (b) indicate the upper and lower limits of each class interval, (c) identify the midpoint of each class interval, (d) find the percentage for each class interval, (e) find the cumulative frequency for each class interval, and (f) find the cumulative percentage for each class interval.

Score Value	<i>f</i>
39	4
38	4
35	2
32	3
31	4
27	9
26	7
25	6
21	13
20	10
17	5
15	<u>7</u>
<i>N</i> = 74	

Answer:

Score Value	<i>f</i>
35-39	10
30-34	7
25-29	22
20-24	23
15-19	<u>12</u>
<i>N</i> = 74	

a.

$$\begin{aligned}
 i &= U - L \\
 &= 39.5 - 34.5 \\
 &= 5
 \end{aligned}$$

b. 34.5-39.5, 29.5-34.5, 24.5-29.5, 19.5-24.5, 14.5-19.5

c. *m* : 37, 32, 27, 22, 17

d.

Percentage for class interval 35 – 39 = $(10 / 74) * 100 = 13.5\%$

Percentage for class interval 30-34 = $(7 / 74) * 100 = 9.5\%$

Percentage for class interval 25-29 = $(22 / 74) * 100 = 29.7\%$

Percentage for class interval 20-24 = $(23 / 74) * 100 = 31.1\%$

Percentage for class interval 15-19 = $(12 / 74) * 100 = 16.2\%$

e. cf: 74, 64, 57, 35, 12

f. 100.0, 86.5, 77, 47.3, 16.2

13. The following is a cross-tabulation of whether respondents rent or own their home by social class for a sample of 240 heads of household:

Social Class	Housing Status		Total
	Rent	Own	
Lower class	62	18	80
Middle class	47	63	110
Upper class	<u>11</u>	<u>39</u>	<u>50</u>
Total	120	120	240

- Which is the independent variable and which is the dependent variable?
- Compute row percents for the cross-tabulation.
- What percent of the sample owns their home?
- What percent of the sample rents?
- What percent of the lower-class respondents owns?
- What percent of the middle-class respondents rents? (f
- Which social class has the greatest tendency to rent?
- Which social class has the greatest tendency to own?
- What can be concluded about the relationship between social class and housing status?

Answer:

- IV = social class, DV = housing status

b.

Social Class	Housing Status		Total
	<i>Rent</i>	<i>Own</i>	
Lower class	62	18	80
	77.5%	22.5%	100.0%
Middle class	47	63	110
	42.7%	57.3%	100.0%
Upper class	11	39	50
	<u>22.0%</u>	<u>78.0%</u>	<u>100.0%</u>
Total	120	120	240
	50.0%	50.0%	100.0%

- c. 50.0%
- d. 50.0%
- e. 22.5%
- f. 42.7%
- g. Lower class
- h. Upper class
- i. The higher the social class, the greater the tendency to own rather than rent.

14. The following is a cross-tabulation of votes in the 2008 Democratic presidential primary by age for a local sample of respondents aged 18 and over:

Vote	Age				Total
	18-29	30-44	45-59	60+	
Clinton	27	25	34	11	97
Edwards	23	35	10	10	78
Obama	<u>30</u>	<u>20</u>	<u>10</u>	<u>15</u>	<u>75</u>
Total	80	80	54	36	250

- a. Which is the independent variable and which is the dependent variable?
- b. Compute total percents for the cross-tabulation.
- c. What percent of the sample voted for Kerry?
- d. What percent of the 18-29 age group voted for Edwards?
- e. Among which age group was Kerry most popular?
- f. Among which age group was Edwards most popular?
- g. Among which age group was Dean most popular?

Answer:

- a. IV = voter age, DV = vote

Vote	Age				Total
	18-29	30-44	45-59	60+	
Clinton	27	25	34	11	97
	33.8%	31.3%	63.0%	30.6%	38.8%
Edwards	23	35	10	10	78
	28.8%	43.8%	18.5%	27.8%	31.2%
Obama	30	20	10	15	75
	<u>37.5%</u>	<u>25.0%</u>	<u>18.5%</u>	<u>41.7%</u>	<u>30.0%</u>
Total	80	80	54	36	250
	100.0%	100.0%	100.0%	100.0%	100.0%

- b. 38.8%
- c. 28.8%
- d. 45-59
- e. 30-44
- f. 60+

15. A sample of respondents was asked their opinions of the death penalty for convicted murderers and of mercy killing for the terminally ill. The responses are given in the following cross-tabulation:

Mercy Killing	Death Penalty		Total
	Favor	Oppose	
Favor	63	29	92
Oppose	<u>70</u>	<u>18</u>	<u>88</u>
Total	133	47	180

- Why is there no independent or dependent variable?
- Compute total percents for the cross-tabulation.
- What percent of the sample favors the use of the death penalty?
- What percent of the sample favors mercy killing?
- What percent of the sample favors both types of killing?
- What percent of the sample opposes both types of killing?
- What percent of the sample favors one type of killing but not the other?
- What can be concluded about the relationship between the variables?

Answer:

- Because neither opinion is clearly the result of the other.

Mercy Killing	Death Penalty		Total
	Favor	Oppose	
Favor	63	29	92
	137.0%	63.0%	200.0%
Oppose	70	18	88
	152.2%	39.1%	191.3%
Total	<u>133</u>	<u>47</u>	<u>180</u>
	289.1%	102.2%	391.3%

- 73.9%
- 51.1%
- 35.0%
- 10.0%
- $38.9 + 16.1 = 55.0\%$
- People who favor the death penalty are more likely to oppose mercy killing, whereas people who oppose the death penalty are more likely to favor mercy killing.

16. From the following table representing the gender of demonstrators outside a local Planned Parenthood, find (a) the percent of pro-choice demonstrators who are female, (b) the percent of pro-life demonstrators who are female, (c) the proportion of pro-choice demonstrators who are female, and (d) the proportion of pro-life demonstrators who are female.

Gender of Pro-Choice and Pro-Life Demonstrators		
Gender	Stance	
	<i>Pro-Choice</i>	<i>Pro-Life</i>
Male	23	32
Female	<u>37</u>	<u>39</u>
Total	60	71

Answer:

Gender of Pro-Choice and Pro-Life Demonstrators		
Gender	Stance	
	<i>Pro-Choice</i>	<i>Pro-Life</i>
Male	23	32
	38.3%	45.1%
Female	37	39
	61.7%	54.9%
Total	<u>60</u>	<u>71</u>
	100.0%	100.0%

- a. 61.7%
- b. 54.9%
- c. The proportion of pro-choice demonstrators who are female is determined by dividing the number of female pro-choice demonstrators by the total number of pro-choice demonstrators.

$$P = 37 / 60$$

$$= .62$$

- d. The proportion of pro-life demonstrators who are female is determined by dividing the number of female pro-life demonstrators by the total number of pro-life demonstrators.

$$P = 39 / 71$$

$$= .55$$

17. The following is a cross-tabulation of sexual orientation by gender for a random sample of respondents aged 18 and over living in Chicago:

Sexual Orientation	Gender		Total
	Male	Female	
Heterosexual	87	106	193
Homosexual	14	9	23
Bisexual	6	3	9
Total	107	118	225

- Are there independent and dependent variables in this case? If so, what are they? If not, explain why not.
- Compute column percents for the cross-tabulation.
- What percent of the sample is heterosexual?
- What percent of the sample is comprised of female homosexuals?
- What percent of the sample is bisexual?
- What percent of the sample is comprised of male heterosexuals?
- What can we conclude about gender differences in sexual orientation?

Answer:

- No, there is no IV or DV because gender does not cause sexual orientation
-

Sexual Orientation	Gender		Total
	Male	Female	
Heterosexual	87 81.3%	106 89.8%	193 85.8%
Homosexual	14 13.1%	9 7.6%	23 10.2%
Bisexual	6 5.6%	3 2.5%	9 4.0%
Total	107 100.0%	118 100.0%	225 100.0%

- 85.8%
- 4.0%
- 4.0%
- The percent of the sample that is comprised of male heterosexuals is determined by dividing the number of male heterosexuals demonstrators by the total number of individuals in the sample.

$$87 / 225 = 38.7\%$$

- Both males and females tend to be heterosexual.

18. A random sample of women over the age of 18 was asked if they considered themselves to be depressed. Their responses are given next, cross-tabulated with their marital status:

State of Depression	Marital Status				Total
	Single	Married	Divorced	Widowed	
Depressed	24	37	11	3	75
Nondepressed	<u>113</u>	<u>82</u>	<u>68</u>	<u>14</u>	<u>277</u>
Total	137	119	79	17	352

- Compute total percents for the cross-tabulation.
- What percent of the sample considered themselves to be depressed?
- What percent of the sample did not consider themselves to be depressed?
- What percent of the sample is divorced women who are not depressed?
- What percent of the sample is single women who are depressed?
- Which marital status is associated with the highest percentage of depressed women?

Answer:

a.

State of Depression	Marital Status				Total
	Single	Married	Divorced	Widowed	
Depressed	24	37	11	3	75
	6.8%	10.5%	3.1%	0.9%	21.3%
Nondepressed	113	82	68	14	277
	32.1%	23.3%	19.3%	4.0%	78.7%
Total	<u>137</u>	<u>119</u>	<u>79</u>	<u>17</u>	<u>352</u>
	38.9%	33.8%	22.4%	4.8%	100.0%

- 21.3%
- 78.7%
- 19.3%
- 6.8%
- Married

19. A sample of respondents was asked their opinions of bilingual education and affirmative action. The responses are given in the following cross-tabulation:

Affirmative Action	Bilingual Education		Total
	<i>Favor</i>	<i>Oppose</i>	
Favor	56	33	89
Oppose	<u>25</u>	<u>97</u>	<u>122</u>
Total	81	130	211

- Why is there no independent variable?
- Compute total percents for the cross-tabulation.
- What percent of the sample favors affirmative action?
- What percent of the sample favors bilingual education?
- What percent of the sample favors both affirmative action and bilingual education?
- What percent of the sample opposes them both?
- What percent of the sample opposes one but not the other?
- What can be concluded about the relationship between the variables?

Answer:

- Because opinion on one subject does not cause opinion on the other.
-

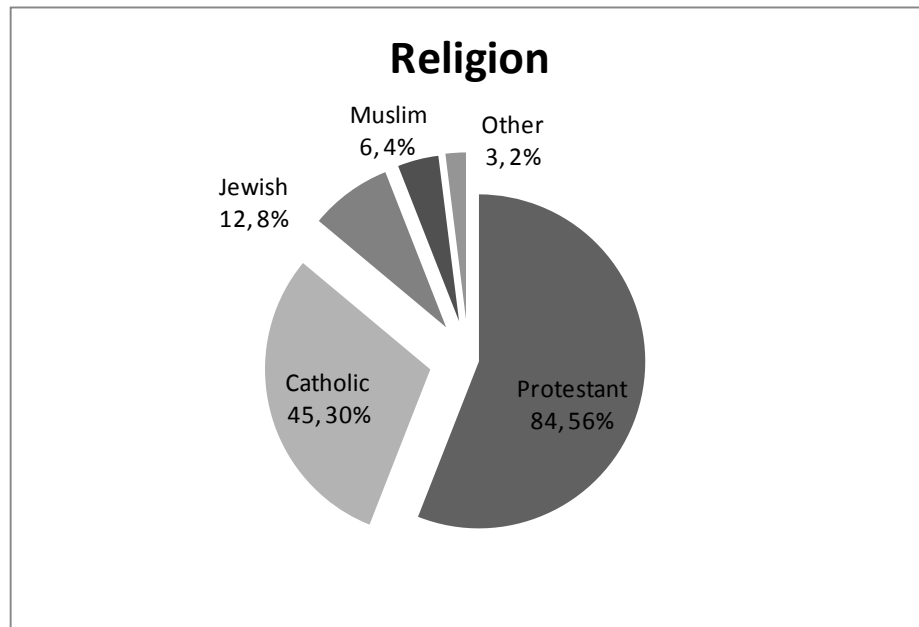
Affirmative Action	Bilingual Education		Total
	<i>Favor</i>	<i>Oppose</i>	
Favor	56	33	89
	26.5%	15.6%	42.2%
Oppose	25	97	122
	<u>11.8%</u>	<u>46.0%</u>	<u>57.8%</u>
Total	81	130	211
	38.4%	61.6%	100.0%

- 42.2%
- 38.4%
- 26.5%
- 46.0%
- 27.5%
- People who favor bilingual education tend to also favor affirmative action and people who oppose bilingual education also tend to oppose affirmative action.

20. Use a pie chart to depict the following information about the religious affiliation of students in a class.

Religion	<i>f</i>	%
Protestant	84	56
Catholic	45	30
Jewish	12	8
Muslim	6	4
Other	<u>3</u>	<u>2</u>
	150	100

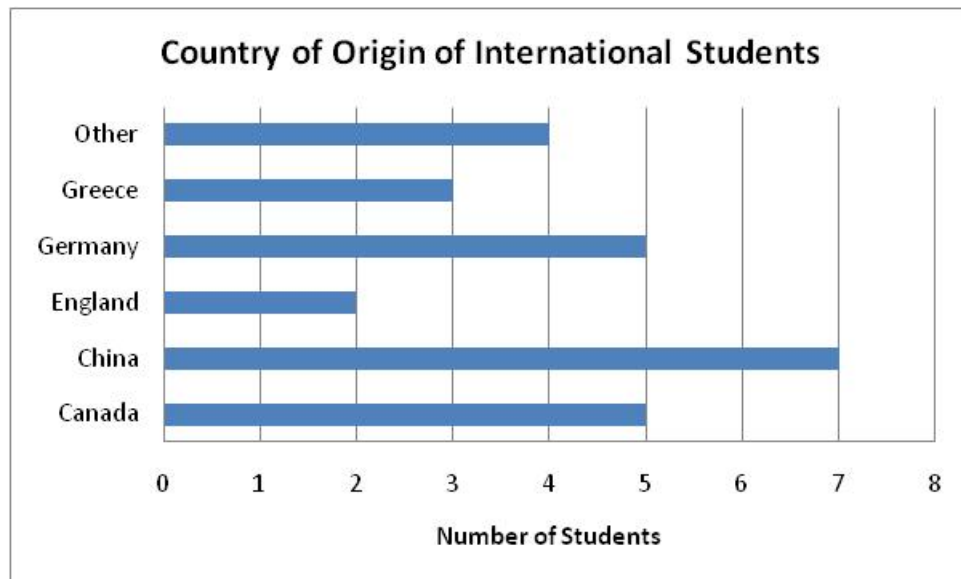
Answer:



21. Depict the following data in a bar graph:

Country of Origin of International Students	<i>f</i>
Canada	5
China	7
England	2
Germany	5
Greece	3
Other	<u>4</u>
	<i>N</i> = 26

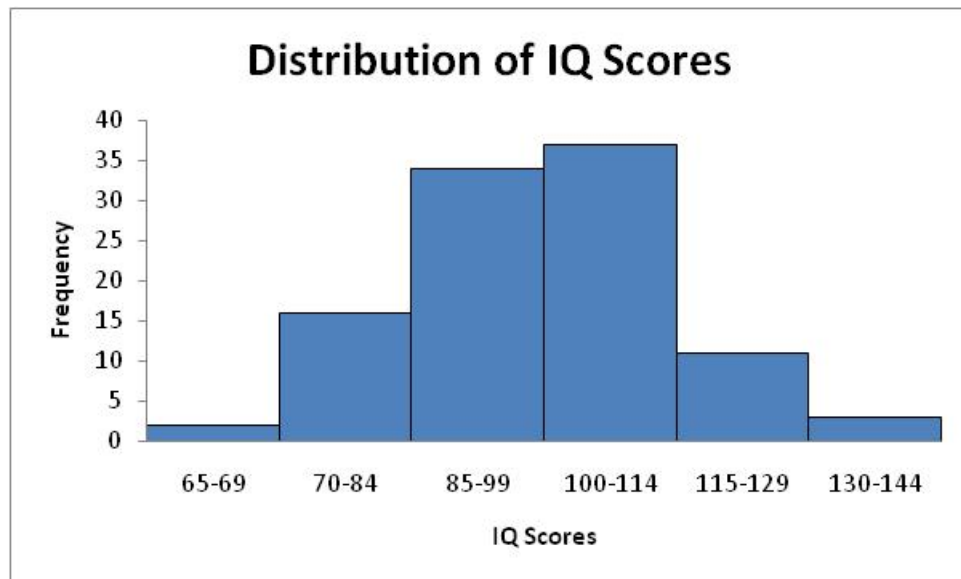
Answer:

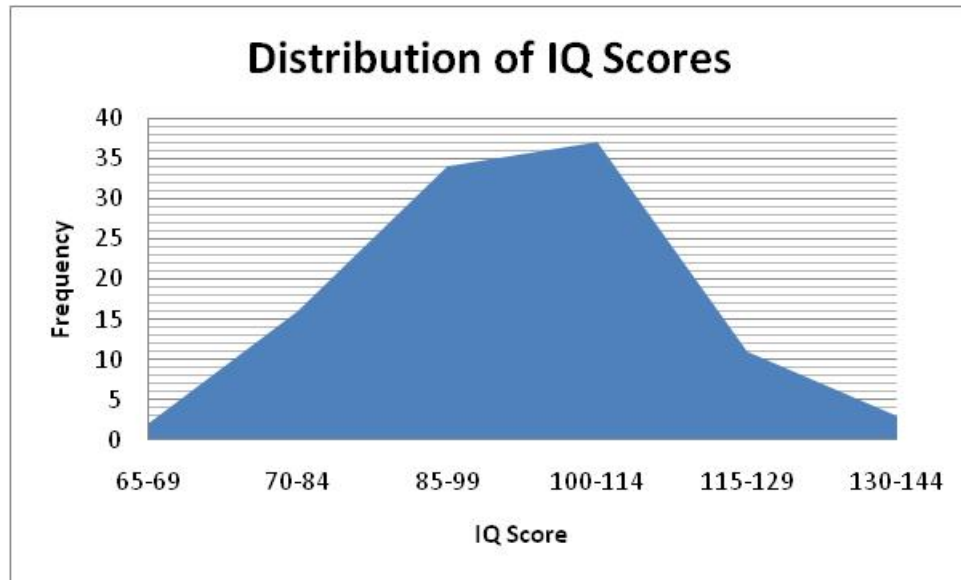


22. On graph paper, draw both a histogram and a frequency polygon to illustrate the following distribution of IQ scores:

Class Interval	<i>f</i>
130-144	3
115-129	11
100-114	37
85-99	34
70-84	16
65-69	2
<i>N</i> = 103	

Answer:





23. Display the following suicide rates (per 100,000) as a histogram:

Age	Suicide Rate
15-24	13.1
25-34	15.7
35-44	15.2
45-54	16.4
55-64	17.0
65-74	19.7
75-84	25.2
85+	20.8

Answer:

