

Chapter 2 Problems and Solutions - Descriptive Statistics: Tabular and Graphical Presentations

8. Data for a sample of 55 members of the Baseball Hall of Fame in Cooperstown, New York, are shown here. Each observation indicates the primary position played by the Hall of Famers: pitcher (P), catcher (H), 1st base (1), 2nd base (2), 3rd base (3), shortstop (S), left field (L), center field (C), and right field (R).

L	P	C	H	2	P	R	1	S	S	1	L	P	R	P
P	P	P	R	C	S	L	R	P	C	C	P	P	R	P
2	3	P	H	L	P	1	C	P	P	P	S	1	L	R
R	1	2	H	S	3	H	2	L	P					

- a. Use frequency and relative frequency distributions to summarize the data.
- b. What position provides the most Hall of Famers?
- c. What position provides the fewest Hall of Famers?
- d. What outfield position (L, C, or R) provides the most Hall of Famers?
- e. Compare infielders (1, 2, 3, and S) to outfielders (L, C, and R).

12. Consider the following frequency distribution.

Class	Frequency
10–19	10
20–29	14
30–39	17
40–49	7
0–59	2

Construct a cumulative frequency distribution and a cumulative relative frequency distribution.

27. The following data are for 30 observations involving two qualitative variables, x and y . The categories for x are A, B, and C; the categories for y are 1 and 2.

Observation	x	y	Observation	x	y
1	A	1	16	B	2
2	B	1	17	C	1
3	B	1	18	B	1
4	C	2	19	C	1
5	B	1	20	B	1
6	C	2	21	C	2
7	B	1	22	B	1
8	C	2	23	C	2
9	A	1	24	A	1
10	B	1	25	B	1
11	A	1	26	C	2
12	B	1	27	C	2
13	C	2	28	A	1
14	C	2	29	B	1
15	C	2	30	B	2

- a. Develop a crosstabulation for the data, with x as the row variable and y as the column variable.
- b. Compute the row percentages.
- c. Compute the column percentages.
- d. What is the relationship, if any, between x and y ?

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8. a.

Position	Frequency	Relative Frequency
Pitcher	17	0.309
Catcher	4	0.073
1st Base	5	0.091
2nd Base	4	0.073
3rd Base	2	0.036
Shortstop	5	0.091
Left Field	6	0.109
Center Field	5	0.091
Right Field	<u>7</u>	<u>0.127</u>
	55	1.000

b. Pitchers (Almost 31%)

c. 3rd Base (3 - 4%)

d. Right Field (Almost 13%)

e. Infielders (16 or 29.1%) to Outfielders (18 or 32.7%)

12.

Class	Cumulative Frequency	Cumulative Relative Frequency
less than or equal to 19	10	.20
less than or equal to 29	24	.48
less than or equal to 39	41	.82
less than or equal to 49	48	.96
less than or equal to 59	50	1.00

27. a.

		<i>y</i>		
		1	2	Total
	A	5	0	5
<i>x</i>	B	11	2	13
	C	2	10	12
	Total	18	12	30

b.

		y		Total
		1	2	
x	A	100.0	0.0	100.0
	B	84.6	15.4	100.0
	C	16.7	83.3	100.0

c.

		y	
		1	2
x	A	27.8	0.0
	B	61.1	16.7
	C	11.1	83.3
Total		100.0	100.0

- d. Category A values for x are always associated with category 1 values for y . Category B values for x are usually associated with category 1 values for y . Category C values for x are usually associated with category 2 values for y .