

AP Statistics - Graphs of Quantitative Data and Shape - Worksheet

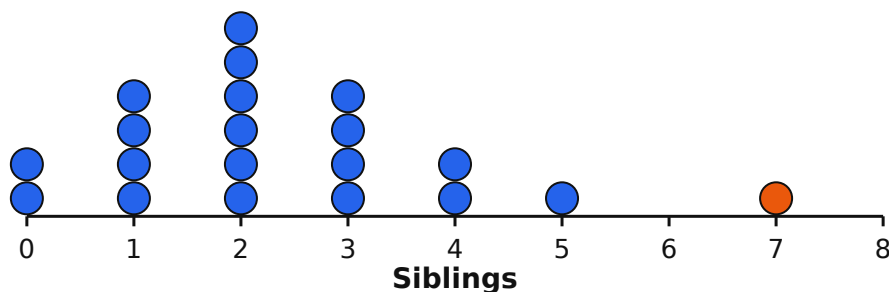
Common Core AP STAT 1.4, AP STAT 1.5, HSS-ID.A.1, HSS-ID.A.3 · maths-pdf.fr/en/

Name: _____ Class: _____ Date: ____/____/____

These 20 problems practice AP Statistics topics 1.4 and 1.5. You will read dotplots, build stemplots, count values in histogram bins, identify shape, and describe a distribution in context.

AP Statistics · Common Core State Standards: **AP STAT 1.4, AP STAT 1.5, HSS-ID.A.1, HSS-ID.A.3**

Exercise 1 - Read a dotplot



(a) How many students have exactly 2 siblings? (b) How many have at least 4? (c) What percent have 1 or fewer?

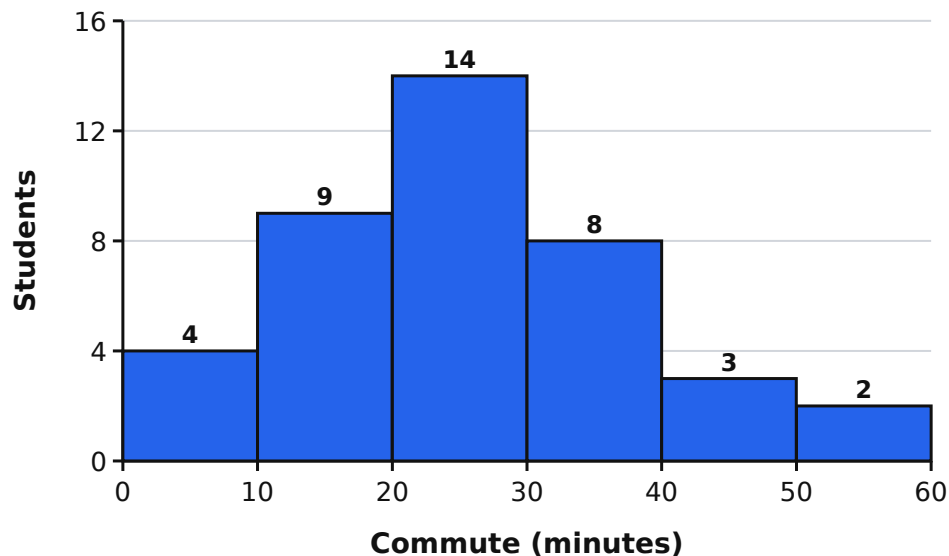
Exercise 2 - Unusual feature

In the sibling dotplot there is one student with 7 siblings and the next largest value is 5. Is 7 a gap, a cluster, or an outlier candidate? Explain.

Exercise 3 - Build a stemplot

Resting heart rates (beats per minute) of 13 athletes: 48, 52, 55, 61, 63, 63, 67, 70, 72, 74, 75, 79, 83. Make a stemplot with a key.

Exercise 4 - Read a histogram



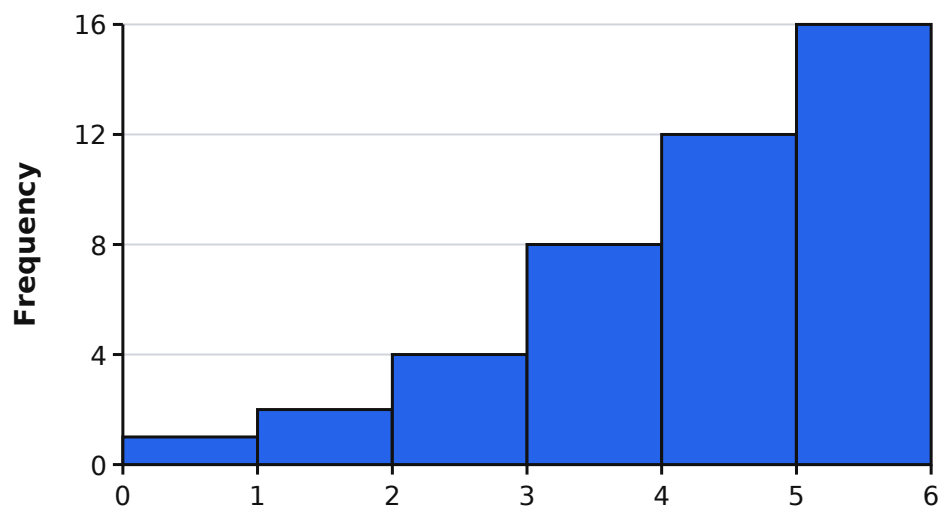
Commute times of 40 students.

(a) How many students commute under 30 minutes? (b) What percent commute 40 minutes or more? (c) Which interval has the most students?

Exercise 5 - Why do the bars touch?

Priya says the bars of a histogram should have gaps like a bar graph. Explain why she is wrong.

Exercise 6 - Name the shape



Skewed left: the tail points to the lower values.

The histogram shows scores on an easy quiz. Describe its shape.

Exercise 7 - Frequency table from data

Daily steps in thousands for 20 days: 34, 41, 22, 18, 55, 27, 31, 46, 29, 38, 25, 33, 52, 20, 44, 36, 30, 28, 39, 24. Make a frequency table using intervals 10 to under 20, 20 to under 30, and so on up to 60.

Exercise 8 - Bimodal

The heights of all students at a basketball camp, boys and girls together, show two peaks, one near 62 inches and one near 70 inches. Describe the shape and give a likely reason.

Exercise 9 - Relative frequency

Convert the commute counts 4, 9, 14, 8, 3, 2 (40 students) to relative frequencies. Explain why the relative frequency histogram has the same shape.

Exercise 10 - Read a stemplot

```
4 | 8
5 | 2 5
6 | 1 3 3 7
7 | 0 2 4 5 9
8 | 3
```

Key: 6|3 = 63 bpm

Resting heart rates (beats per minute).

Use the stemplot of resting heart rates. (a) What is the lowest value? (b) How many athletes are in the 70s? (c) Find the range.

Exercise 11 - Bin width

A teacher makes two histograms of the same 60 test scores. One uses 5-point intervals and one uses 50-point intervals. Which will hide the shape of the data? Explain.

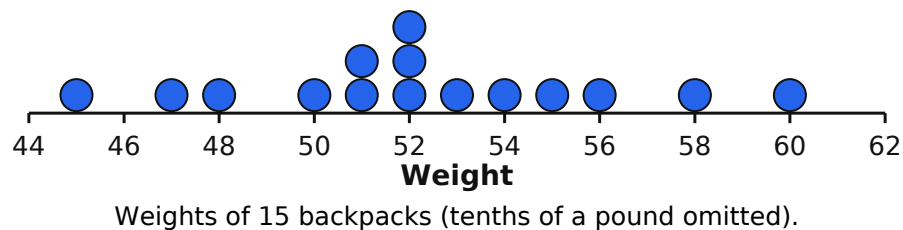
Exercise 12 - Center and spread

For the commute histogram (40 students), give an estimate of the center and the spread, in context.

Exercise 13 - Describe in context

Monthly rainfall (in inches) in a city: 2.1, 3.4, 2.8, 4.0, 3.1, 2.5, 3.8, 9.6, 2.9, 3.3, 3.0, 3.6. Describe the distribution using shape, outliers, center, and spread.

Exercise 14 - Backpack weights



Describe the shape and say how many of the 15 backpacks weigh more than 54.

Exercise 15 - Compare two shapes

Two classes take the same test. Class A scores: 55, 60, 62, 64, 65, 65, 66, 68, 70, 95. Class B scores: 58, 61, 63, 65, 66, 67, 69, 70, 72, 74. Describe how the two distributions differ.

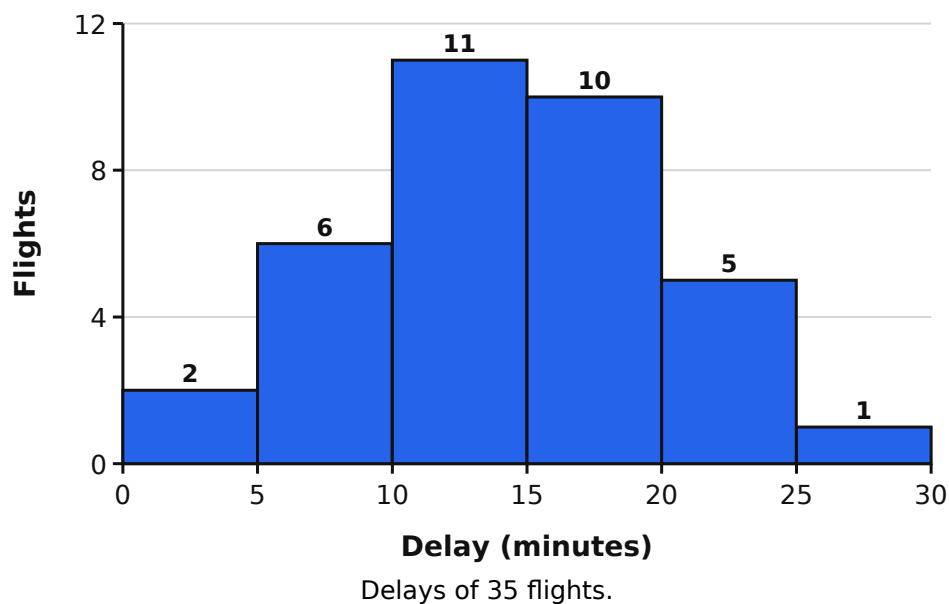
Exercise 16 - Interpret a percent

In a histogram of 250 hourly wages, the bar from \$12 to under \$14 has relative frequency 0.18. How many workers earn from \$12 to under \$14? If the bars below \$12 have relative frequencies 0.07 and 0.15, what percent earn less than \$14?

Exercise 17 - Choosing a graph

A coach has the 12 free-throw percentages of one player over a season. Another coach has 600 times from a marathon. Which data set suits a dotplot and which a histogram? Explain.

Exercise 18 - Flight delays



(a) Describe the shape. (b) What fraction of flights were delayed 15 minutes or more? (c) In which interval is the median?

Exercise 19 - Change in data

The score 95 in Class A was a typing error and should be 65. Redraw the idea: how does correcting it change the shape, outlier status, and range?

Exercise 20 - Quartile position

A stemplot of 13 resting heart rates (48, 52, 55, 61, 63, 63, 67, 70, 72, 74, 75, 79, 83) is shown earlier. Find the median and the percent of athletes below 65 bpm.