§8.1 # 2a 7bc 8 10a 12a 17 21 25

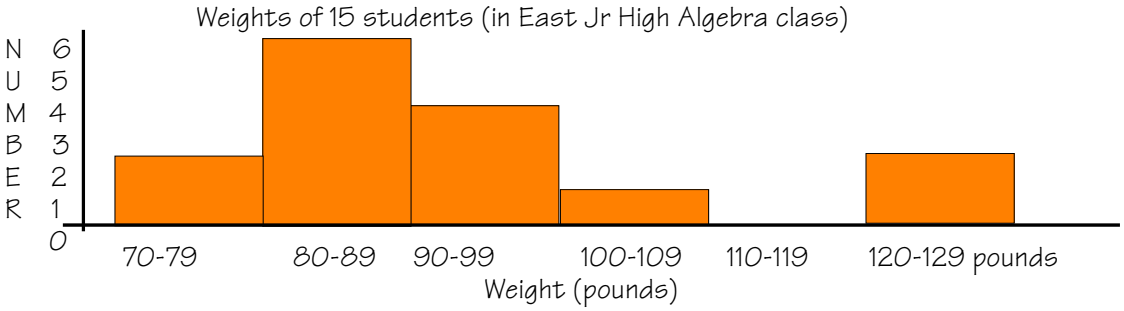
2a. Each ● represents 100 million people. For Spanish speakers, we see: ●●◔
so (2 + ¼) x ● represents 2.25 x 100 million people = 225 million people.

7. 7 | 2 4 represents weights of 72 and 74 pounds,
12 | 3 5 represents weights of 123 and 125 pounds.

7a. The lightest student in the class weighs 72 pounds.

7c. The heaviest student weighs 125 pounds.

8.



10a. The height of each bar displays the amount of rainfall in each month.
The highest bar occurs at November, with a height of 30, representing 30 cm of rain during the month of November.

12a. From the bar graph we estimate the length of the Mississippi River – about 3800 km.

17. If the data below is displayed in a single-bar graph of length 8 cm.

Savings, which is 10% of the budget, should be 10% of 8 cm = .8 cm (or 8 mm).
Rent, being 30% of the budget, should be 30% of the 8cm. length = .30(8cm) = 2.4 cm (or 24 mm)
Food comprises 12% of expenditure, and so should cover 12% of the 8 cm length. = .96 cm or 9.6 mm.
(and so on)
calculate the length of each segment, and check your work by adding them back up to 8 cm !

21a. Textbook expenditures by 25 students, in $, for Fall term

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

Legend:
4 | 0 1
represents expenditures of $40 and $41

21b. Textbook expenditures

$ spent	# of students
15-19	1
20-24	2
25-29	0
30-34	2
35-39	5
40-44	4
45-49	3
50-54	4
55-59	0
60-64	3

#21c. Look at the answer in the textbook.
What is wrong with it?
(It IS INCORRECT!!!)
What should be done to make it correct?

25a. With 30% of the world's land, Asia is the largest continent.

25b. Africa, at 20%, is about twice the size of Antarctica (9.5%).

25 c. Africa is 2/3 the size of Asia (20% compared to 30%).

25d. Africa & Asia together (20%+30%) make up half the land.
(The statement in the problem "surface" is INCORRECT.)

25e. Australia (5%) is about $^{5}/_{16}$ the size of North America (16%).

.07(ALL land) ≈ 4.1G mi²
Solve for "ALL land"
(divide by .07)

25f. Europe is ~7% is ~4.1million mi² ⇒ ALL is ~ 58.6 million mi²

§8.2 # 1ace 2 3 4 6 7 9b 11 13

1a. 2 5 5 7 8 8 8 10
↑
Mode is clearly 8 .
Median is clearly 7.5 .
Mean is (2+5+5+7+3•8+10)/8 = 53/8 = 6.625

1c. 12 17 18 18 22 22 30
↑
The modes are 18 & 22.
Median is clearly 18 .
Mean is (12+17+18+18+22+22+30)/7 = 139/7 = $19\frac{6}{7}$

1e. 5 5 5 5 5 10
↑
Mode is 5 .
Median is 5 .
Mean is (5•5 + 10)/6 = 35/6 = $5\frac{5}{6}$

2. 3 3 9 10 11 12 23 number of days used for sick leave last year by my seven employees.
The typical number of days' sick leave is not 3 . But the mode is 3.

3a. If all six students scored 80 on the test, then the mean, median and mode would all be 80.
3b. One example: 60 75 80 80 90 95 are data with mean, median and mode all 80.

4. If the mean score for n=20 is 75, then the total of all the points must be 20•75, or 1500.

6. 28 scores average 80. New scores of 50 & 60 are added. The new total points = 28•80 + 5 + 60
So the new mean is lower, (28•80 + 50+60)/30. (NOTE this is NOT 63⅓, which is 'way too low.)

7a. Mean age: (40+36+8+2+6)/five = 92/5 = 18.4
7b. Five years later, each person's age will be 5 more than current age, so new mean age will be 18.4 + 5.
7c. Same reasoning, their mean age in ten years will be 28.4
7d. It's that "rule" we discovered: If the data are all increased by amount A, then mean increases by A.

9b. (Note I did NOT assign part 9a, because it is INCORRECTLY stated. Selina's reasoning is false. Period!)
... because no conjecture on the mean (other than that it is more than 50 and less than 100) can be made without knowing the PROPORTIONS of the class who scored 50 and 100.
For instance, if half the class scored 50 and the other half 100, then the mean is 75.
But if 20% of the class scored 50 and 80% of the class scored 100, the mean would be 90.
Also see # 11.

11. If m students scored 100 and n scored 50, the mean would be $\frac{m \cdot 100 + n \cdot 50}{m + n}$

13a. The term paper score is 85 & it is 60% of grade (You can think 60 parts out of 100)
78 average on homework, and HW is 25% of grade
90 on final, which is the remainder (15%) of grade.

Grade computation would then be .60(85) + .25(78) + .15(90) = 84

13b "overall score" = A(term paper score) + B(homework average) + C(final exam score)
A is % term paper should count, B is % homework counts, C is % final exam counts.

NOTE: THERE WERE NO GOOD PROBLEMS REGARDING RANGE, IQR AND STD. DEV. HERE.
That does not mean they are unimportant! For extra practice, redo the exercises on the DSN pages.