

Homework #1

Due 11:59pm (Section 2/Section 3) Feb. 8, 2019

You are encouraged to read Chapter 1 of your textbook to complete the homework.

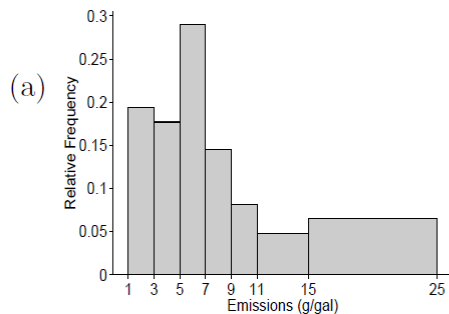
Please follow the name convention to name your **folders and files**: **CC_<lastName>_HW<#>.pdf**. **Your HW will not be graded if you do not follow this name convention.** And electronically submit your HW to cv094021@gmail.com

Pages 40-41:

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The relative frequencies of the rectangles shown are 0.05, 0.1, 0.15, 0.25, 0.2, and 0.1. The sum of these relative frequencies is 0.85. Since the sum of all the relative frequencies must be 1, the missing rectangle has a height of 0.15.

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(b) No

(c) The class interval widths are unequal.

(d) The classes 11-<15 and 15-<25

16 (1), 16 (3)

(a) (4) (c) (1)

Pages 44-47:

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- (a) The sum of the numbers decreases by $12.9 - 1.29 = 11.61$, so the mean decreases by $11.61/15 = 0.774$.
- (b) No, it is not possible to determine the value of the mean after the change, since the original mean is unknown.
- (c) The median is the eighth number when the list is arranged in order, and this is unchanged.
- (d) It is not possible to tell by how much the standard deviation changes, because the original standard deviation is unknown.

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- (a) The sum of the numbers 284.34, 173.01, 229.55, 312.95, 215.34, 188.72, 144.39, 172.79, 139.38, 197.81, 303.28, 256.02, 658.38, 105.14, 295.24, 170.41 is 3846.75. The mean is therefore $3846.75/16 = 240.4219$.

- (b) The 16 values arranged in increasing order are:

105.14, 139.38, 144.39, 170.41, 172.79, 173.01, 188.72, 197.81,

215.34, 229.55, 256.02, 284.34, 295.24, 303.28, 312.95, 658.38

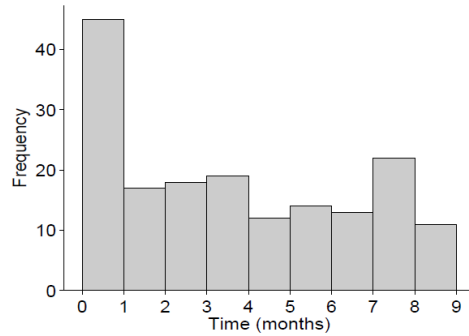
The median is the average of the 8th and 9th numbers, which is $(197.81 + 215.34)/2 = 206.575$.

- (c) $0.25(17) = 4.25$, so the first quartile is the average of the 4th and 5th numbers, which is $(170.41 + 172.79)/2 = 171.60$.

- (d) $0.75(17) = 12.75$, so the third quartile is the average of the 12th and 13th numbers, which is $(284.34 + 295.24)/2 = 289.79$.

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(a)



- (b) The sample size is 171, so the median is the value in position $(171 + 1)/2 = 86$ when the values are arranged in order. There are $45 + 17 + 18 = 80$ values less than or equal to 3, and $80 + 19 = 99$ values less than or equal to 4. Therefore the class interval $3 - < 4$ contains the median.
- (c) The sample size is 171, so the first quartile is the value in position $0.25(171 + 1) = 43$ when the values are arranged in order. There are 45 values in the first class interval $0 - < 1$. Therefore the class interval $0 - < 1$ contains the first quartile.
- (d) The sample size is 171, so the third quartile is the value in position $0.75(171 + 1) = 129$ when the values are arranged in order. There are $45 + 17 + 18 + 19 + 12 + 14 = 125$ values less than or equal to 6, and $125 + 13 = 138$ values less than or equal to 7. Therefore the class interval $6 - < 7$ contains the third quartile.