

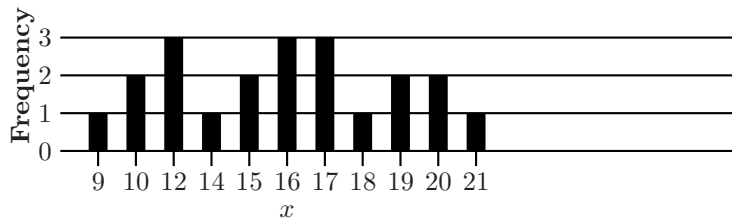
Review for Exam 4
Math 102

Complete the following exercises for a review. Questions on the exam will be similar to questions on this review, questions from the homework assignments and the suggested exercises.

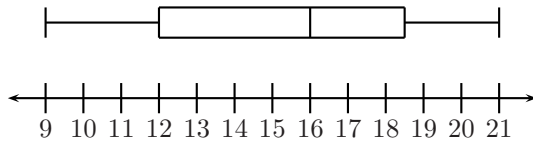
1. Consider the following data set 10, 21, 12, 16, 9, 18, 17, 16, 10, 20, 19, 19, 15, 16, 12, 17, 14, 15, 17, 12, 20. Answer the following questions about this set.

(a)

x	f
9	1
10	2
12	3
14	1
15	2
16	3
17	3
18	1
19	2
20	2
21	1



- (c) $\bar{x} = 15.5$, median: 16, mode: none
 (d) The 5 number summary is 9, 12, 16, 18.5, 21.



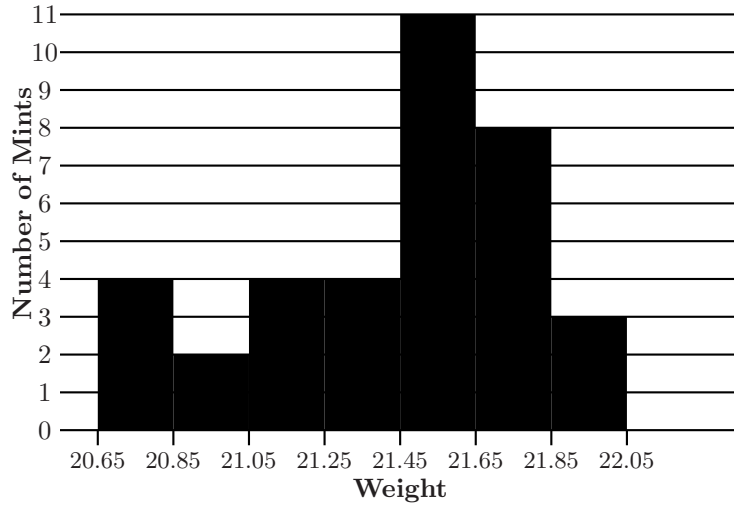
- (e) $s = 3.5$
 (f) The coefficient of variation is $\frac{s}{\bar{x}} \cdot 100\% = \frac{3.5}{15.5} \cdot 100\% = 23\%$.

2. The data set describes exam scores for students in a class. Draw a stem and leaf diagram with the tens place as the stem and the ones place as the leaf.

84,73,56,61,65,78,82,91,73,59,63,72,80,89,71,63,90,54,32,67,75,85

3	2
4	
5	469
6	13357
7	123358
8	02459
9	01

class	frequency
20.65-20.85	4
20.85-21.05	2
21.05-21.25	4
21.25-21.45	4
21.45-21.65	11
21.65-21.85	8
21.85-22.05	3



3.

The machine is not doing a good job.

4. 35 people took a survey in Moorhead asking about yearly household income. The results are described in the following histogram. Use the histogram to answer the following questions.

- 12
- $\frac{1}{35} \approx 0.028$, which gives 2.8%
- 30,000 to 40,000
- $\frac{8}{35} \approx 0.229$, which gives 22.9%
- 40,000 to 50,000
- Probably not. The data is biased in some way.
- When was the survey taken? Did males or females take the survey? Were these homeowners? There are others.

5. Use the following frequency table to compute the mean, median, mode, standard deviation, and coefficient of variation for the data.

x	f	$x \cdot f$	$x - \bar{x}$	$(x - \bar{x})^2$	$f \cdot (x - \bar{x})^2$
14	3	42	-3.3	10.89	32.67
15	0	0	-2.3	5.29	0
16	2	32	-1.3	1.69	3.38
17	5	85	-0.3	0.09	0.45
18	4	72	0.7	0.49	1.96
19	2	38	1.7	2.89	5.78
20	3	60	2.7	7.29	21.87
	$\sum f = 19$	$\sum x \cdot f = 329$			$\sum (x - \bar{x})^2 \cdot f$

The mean is $\bar{x} = \frac{\sum x \cdot f}{\sum f} = \frac{329}{19} \approx 17.3$. The median is 17. The mode is 17. The standard deviation is $s = \sqrt{\frac{\sum (x - \bar{x})^2 \cdot f}{n - 1}} = \sqrt{\frac{66.11}{18}} \approx 1.92$. The coefficient of variation is $\frac{1.92}{17.3} \cdot 100\% \approx 11\%$.

