

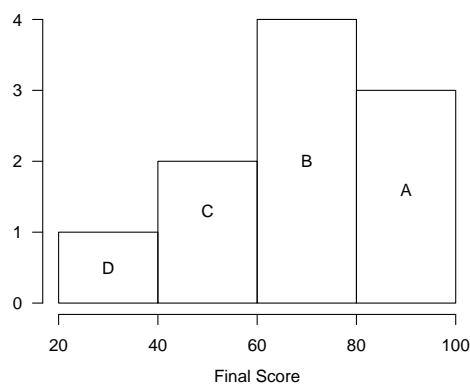
Math 13 - Homework 2

Name: _____ Class Number: _____

1) True or False

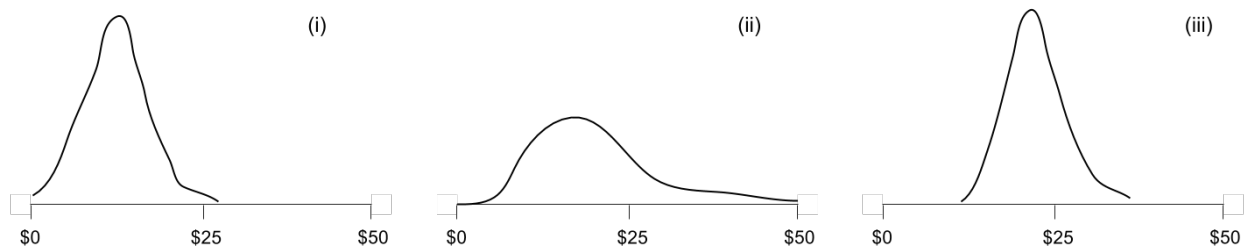
- A histogram allows you to visualize how values are distributed.
- Bars in a histogram can be rearranged.
- The area of the bars in a histogram represent the frequency of values in a class interval.
- Class intervals must be of equal width in a histogram.
- The height of the bars in a histogram must be equal to the frequency of the corresponding class intervals.
- The total area of the rectangles in a histogram must be equal to 100%.

2) The histogram below shows the distribution of final scores in a certain class.



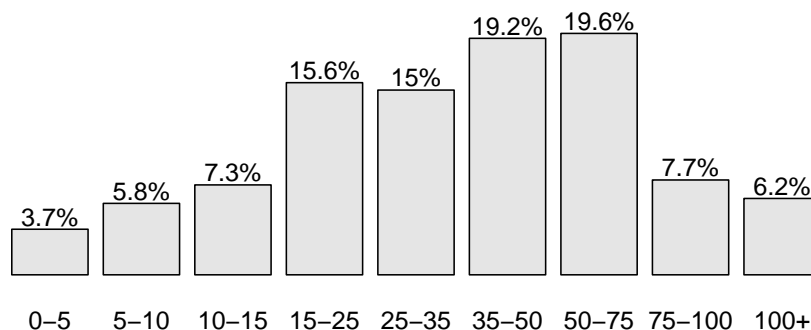
- Which block represents the people who scored between 60 and 80?
- Ten percent scored between 20 and 40. About what percentage scored between 40 and 60?
- About what percentage scored over 60?

3) An investigator collects data on hourly wage rates for three groups of people. Those in group B earn about twice as much as those in group A. Those in group C earn about \$10 an hour more than those in group A. Which histogram belongs to which group? (The histograms don't show wages above \$50 an hour)



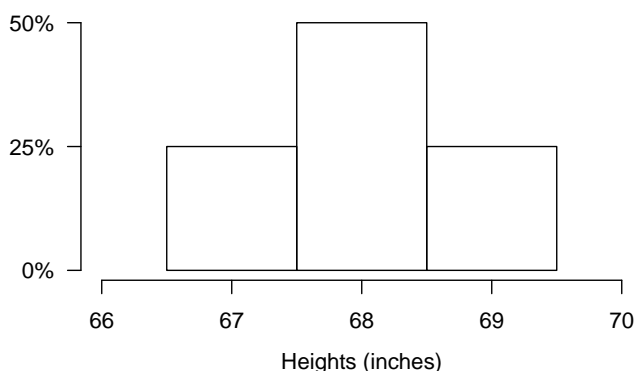
4) The figure below shows the distribution of American families by income. Ranges include the left endpoint but not the right. For example, 3.7% of the families had incomes in the range \$0-\$4,999, 5.8% had incomes in the range \$5,000-\$9,999, and so forth. True or False, and explain:

- Although American families are not spread evenly over the whole income range, the families that earn between \$10,000 and \$35,000 are spread fairly evenly over that range.
- The families that earn between \$35,000 and \$75,000 are spread fairly evenly over that range.
- The graph is a histogram.



5) In one hypothetical study, 100 people had their heights measured to the nearest eighth of an inch. A histogram for the results is shown below. Two of the following lists have this histogram. Which ones, and why?

- 30 people, 67 inches tall; 40 people, 68 inches tall; 30 people, 69 inches tall.
- 10 people, $66\frac{3}{4}$ inches tall; 15 people, $67\frac{1}{4}$ inches tall; 50 people, 68 inches tall; 25 people, 69 inches tall.
- 25 people, 67 inches tall; 50 people, 68 inches tall; 25 people, 69 inches tall.



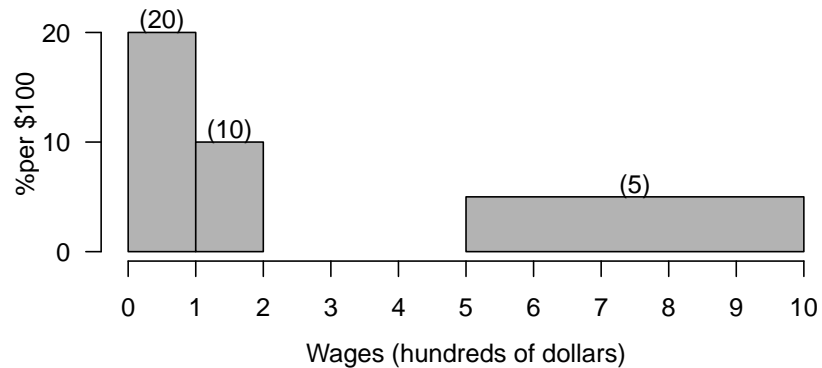
6) The survey about color preferences reported the age distribution of the people who responded. Here are the age distribution of the results:

| | age | count |
|---|------------|-------|
| 1 | 1-18 | 10.00 |
| 2 | 19-24 | 97.00 |
| 3 | 25-35 | 70.00 |
| 4 | 36-50 | 36.00 |
| 5 | 51-69 | 14.00 |
| 6 | 70 or more | 5.00 |

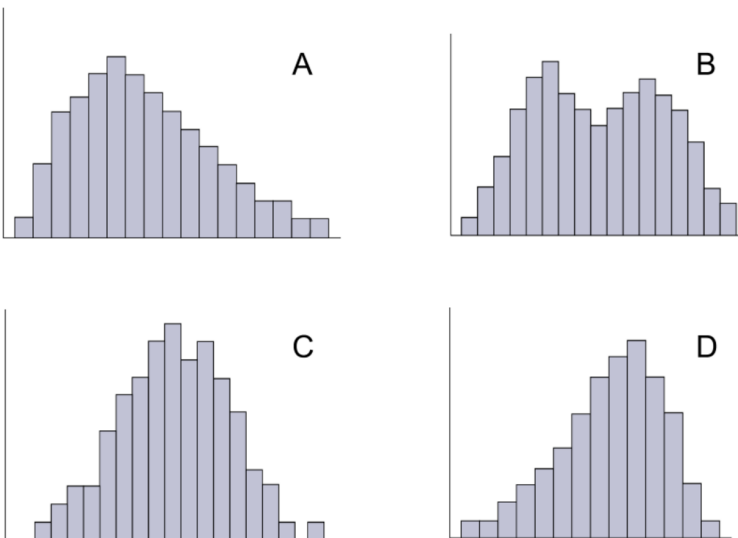
- Add the counts and compute the percents for each age group
- Make a bar chart of the percents

- c. Describe the distribution
- d. Explain why your bar chart is not a histogram

7) A histogram of monthly wages for part-time employees is shown below (densities are marked in parentheses). Nobody earned more than \$1,000 a month. The block over the class interval from \$200 to \$500 is missing. How tall must it be?



8) The following figure shows four histograms (A, B, C, D).



- a. Which distribution seems to be skewed right?
- b. Which distribution seems to be skewed left?
- c. Which distribution seems to be symmetrical or “bell” shaped?
- d. Which distribution seems to be bimodal?
- e. Which distribution shows a gap?

9) The following table displays the IQ scores of 60 fifth-grade students chosen at random from one school.

| | | | | | | | | | | | | | | | | | |
|------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|
| [1] | 145 | 139 | 126 | 122 | 125 | 130 | 96 | 110 | 118 | 118 | 101 | 142 | 134 | 124 | 112 | 109 | 134 |
| [18] | 113 | 81 | 113 | 123 | 94 | 100 | 136 | 109 | 131 | 117 | 110 | 127 | 124 | 106 | 124 | 115 | 133 |
| [35] | 116 | 102 | 127 | 117 | 109 | 137 | 117 | 90 | 103 | 114 | 139 | 101 | 122 | 105 | 97 | 89 | 102 |
| [52] | 108 | 110 | 128 | 114 | 112 | 114 | 102 | 82 | 101 | | | | | | | | |

Make a frequency table and draw a histogram, by dividing the range of the data into the following classes:

- 75 to 84
- 85 to 94
- 95 to 104
- 105 to 114
- 115 to 124
- 125 to 134
- 135 to 144
- 145 to 154