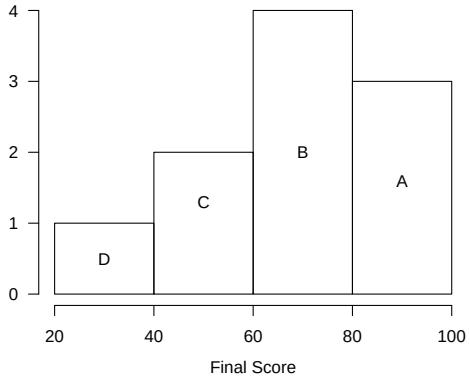
Math 13 - Homework 3

Name: _____ **Class Number:** _____

1) True or False

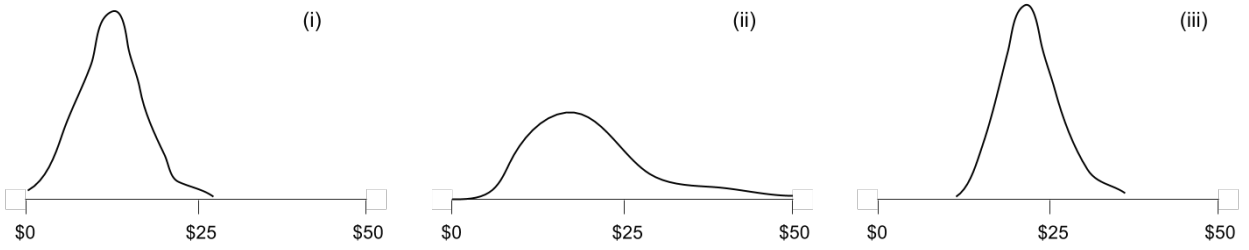
a. A histogram allows you to visualize how values are distributed.
b. Bars in a histogram can be rearranged.
c. The area of the bars in a histogram represent the frequency of values in a class interval.
d. Class intervals must be of equal width in a histogram.
e. The height of the bars in a histogram must be equal to the frequency of the corresponding class intervals.
f. 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.



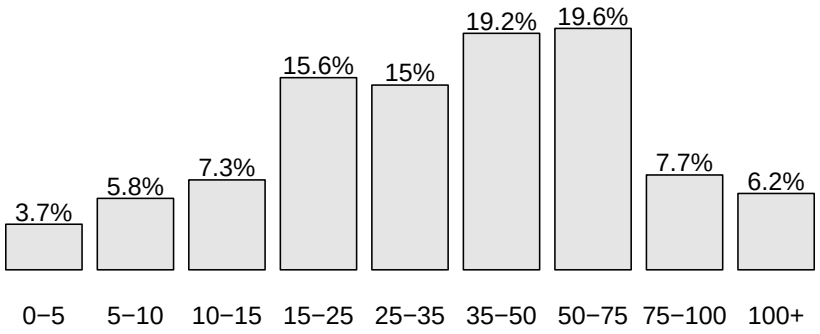
a. Which block represents the people who scored between 60 and 80?
b. Ten percent scored between 20 and 40. About what percentage scored between 40 and 60?
c. About what percentage scored over 60?

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)



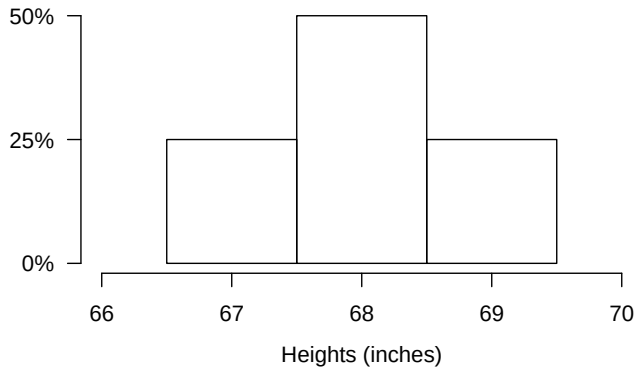
4) The figure below shows the distribution of American families by income. Ranges include the left endpoint but not the right. For example, 3.7% of the families had incomes in the range $0-$4,999, 5.8% had incomes in the range $5,000-$9,999, and so forth. True or False, and explain:

a. 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.
b. The families that earn between $35,000 and $75,000 are spread fairly evenly over that range.
c. 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?

a. 30 people, 67 inches tall; 40 people, 68 inches tall; 30 people, 69 inches tall.
b. 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.
c. 25 people, 67 inches tall; 50 people, 68 inches tall; 25 people, 69 inches tall.



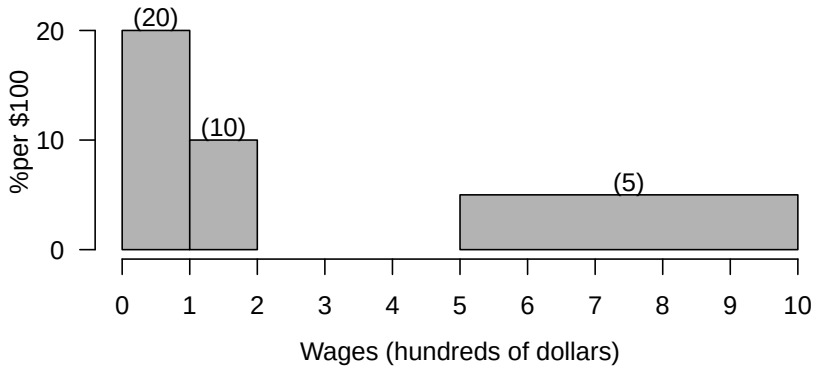
6) The survey about color preferences reported the age distribution of the people who responded. Here are the age distribution of the results:

	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

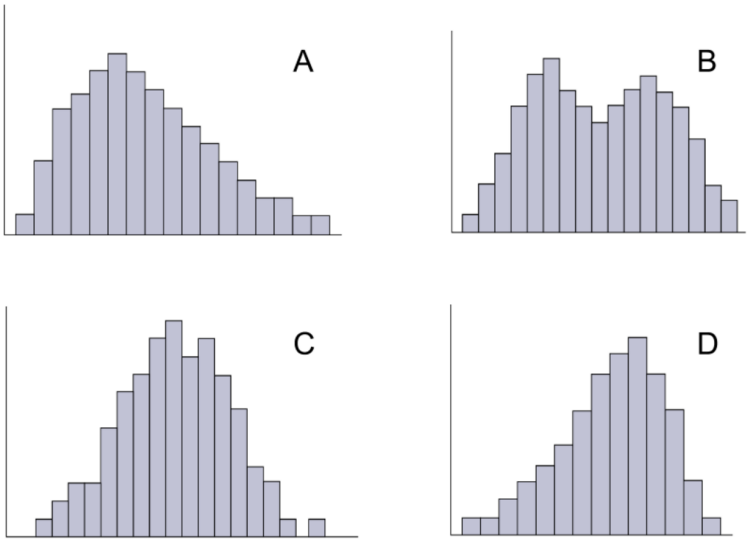
a. Add the counts and compute the percents for each age group
b. Make a bar chart of the percents

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.

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 [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
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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