

The following frequency distribution will be used in the next four questions. The variable is assumed to be continuous.

value	%
0–10	4
10–15	4
15–25	11
25–30	9
30–35	12
35–40	15
40–42	8
42–45	10
45–47	6
47–50	7
50–55	9
55–60	5

- Which bracket contains the mode?
a) 30–35 b) 45–47 c) 35–40 d) 40–42 e) 42–45
- Which bracket contains the median?
a) 30–35 b) 45–47 c) 35–40 d) 40–42 e) 42–45
- Which bracket contains the 70-th percentile?
a) 30–35 b) 45–47 c) 35–40 d) 40–42 e) 42–45
- Which of the following is the most descriptive of the shape of the histogram?
a) a multi-humped curve
b) a curve with a long left-hand tail
c) a two-humped curve
d) a curve with a long right-hand tail
e) a normal curve

Exam 1

The following is data for a scatter diagram. It is used in the next four questions.

x	y
1	5
1	6
3	8
3	3
7	6
9	2

5. What is the correlation coefficient for this data?
a) $-.22$ b) $-.36$ c) $-.44$ d) $-.5$ e) $-.72$
6. What is the ideal center of the scatter diagram?
a) $(4, 5)$ b) $(4, 2)$ c) $(2, 3)$ d) $(3, 2)$ e) $(5, 4)$
7. What is the slope of the SD line?
a) -1.5 b) $-.8$ c) -1.25 d) $-.67$ e) $-.4$
8. What is the y -intercept of the SD line?
a) 8.33 b) 7.67 c) 9.25 d) 5.5 e) 11.25

Suppose given a binormal distribution with

$$\begin{aligned} \text{avg}(x) &= 80 & \text{avg}(y) &= 150 \\ \text{SD}(x) &= 50 & \text{SD}(y) &= 40 & r &= .75 \end{aligned}$$

We study it in the next nine questions.

9. What is the regression estimate for $x = 40$?
a) 112 b) 132 c) 118 d) 122 e) 126
10. What is the slope of the regression line?
a) $.8$ b) $.6$ c) $.75$ d) 1.2 e) 1.5
11. What is the y -intercept of the regression line?
a) 102 b) 67 c) 96 d) 82 e) 74
12. Suppose the x -value is in the 79-th percentile. What is the percentile value of its regression estimate?
a) $67\frac{1}{2}\%$ b) 75% c) 61% d) $72\frac{1}{2}\%$ e) 64%
13. Suppose $y = 100$. What is the regression estimate for predicting the value of x from that of y ?
a) 62 b) 41 c) 33 d) 52 e) 38
14. What is the 16-th percentile of the y -distribution?
a) 92 b) 102 c) 98 d) 106 e) 110

15. What is the percentile value of 150 in the x -distribution?
a) 92% b) $87\frac{1}{2}\%$ c) $94\frac{1}{2}\%$ d) 82% e) 85%
16. What percent of the x -values are between 40 and 150?
a) $67\frac{1}{2}\%$ b) 82% c) 71% d) $74\frac{1}{2}\%$ e) 78%
17. What percent of the x -values are between 105 and 150?
a) $41\frac{1}{2}\%$ b) 18% c) $27\frac{1}{2}\%$ d) 23% e) $37\frac{1}{2}\%$

Suppose given a binormal distribution with

$$\begin{aligned} \text{avg}(x) &= 250 & \text{avg}(y) &= 150 \\ \text{SD}(x) &= 100 & \text{SD}(y) &= 60 & r &= -.8 \end{aligned}$$

Control for $x = 400$.

18. What is the 80-th percentile of the controlled y -distribution?
a) 138 b) 109 c) 124 d) 118 e) 112
19. What percent of the controlled y -values are between 90 and 120?
a) 24% b) $21\frac{1}{2}\%$ c) $27\frac{1}{2}\%$ d) 18% e) 31%
20. What is the percentile value of 60 in the controlled y -distribution?
a) 42% b) $37\frac{1}{2}\%$ c) $28\frac{1}{2}\%$ d) 34% e) 31%