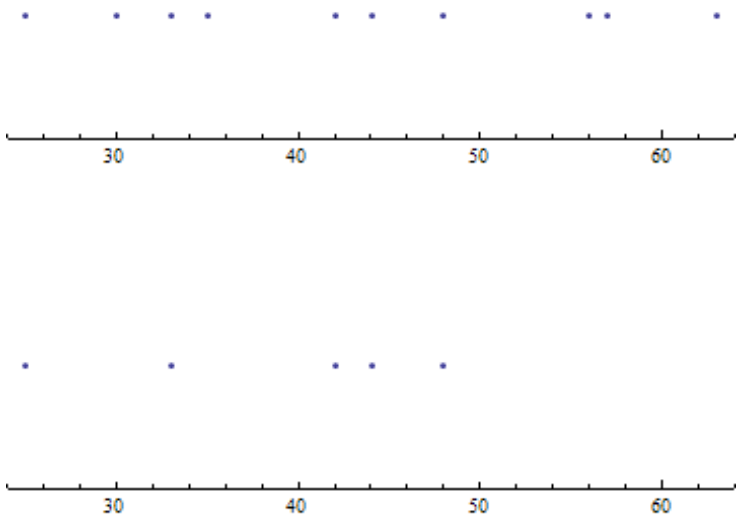
1. (a) Before and after dotplots.



   (b) Before the firing, there were 6 people above 40 out of the 10 employees, that is 60% of the employees were over 40. After the firing round there were 3 people above 40 out of 5, that is 60% of the employees. So without *exact age information*, there is no evidence of possible age discrimination.

   (c) Now the proportion of employees over 50 years old, before and after the firings are 30% and 0%, respectively. So we now definitely have evidence of possible age discrimination.

2. D

3. (a) $(63 + 68)/2 = 65.5$

   (b) 1. Number each of the six ants according to the antenna lengths

1	2	3	4	5	6
65	71	72	73	63	68

   2. Using a random number generator, obtain 2 numbers between 1 and 6, and associate those two numbers to the corresponding ants in the previous table. i.e., if the numbers are 3 and 5, that means we selected ants with antenna lengths 72 and 63.

   3. Calculate the average length of the two antennas. i.e., $(72 + 63)/2 = 67.5$.

   4. Repeat steps 2 and 3 many times (100s)

   5. display the distribution of the results.

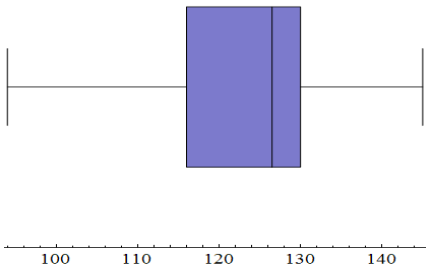
   (c) Probability $= \frac{130}{1050} \approx 12.381\%$

4. A

5. (a)

9	4
10	18
11	67
12	26779
13	04
14	25

(b) min = 94, $Q_1 = 116$, median= 126.5, $Q_3 = 130$, max = 145.



6. D

7. B

8. (a) mean= $18.3\overline{3}$, median = 15.
   (b) mean= $19.4\overline{4}$, median = 15.
   (c) they double in value
   (d) they increase by 10 units.

9. (a) A
   (b) B
   (c) 1.5
   (d) $91583.78

10. this question will not be included in test #1

11. A

12. (a) two-stage sampling, (b) Simple Random Sampling, (c) stratified random sampling, (d) Systematic sampling with Random Start.