Math 310 - Dr. Miller - Homework #11: Making Data Sets

For each question below, *make up* your own set of 5 scores from 0 to 100, inclusive, that would have the given properties. If not possible, explain.

1. a mean of 50 and a median of 60

2. a mean of 50 and a median of 60, with a smaller range than above

3. a median of 50 and a mean of 60

4. a median of 50 and a mean of 60, with a larger range than above

5. a mode of 50 and a median of 60

6. a mode of 50 and a mean of 60

7. two modes - 50 and 60 - and a median of 53

8. two modes - 50 and 60 - and a mean of 53

9. two modes - 20 and 30 - and a median of 35

10. the mean will be significantly changed (+/- 10 points) by inclusion of a sixth score of 100 – that is, the old mean for your original 5 scores is plus/minus 10 points different from the new mean of all 6 scores

11. the mean will be significantly affected (+/- 10 points) by inclusion of a sixth score of 100, and the range is larger than in Problem #10 above

12. the median will be significantly changed (+/- 10 points) by including a sixth score of 0

13. the median will NOT be significantly affected (+/- 10 points) by inclusion of a sixth score of 0

14. the mean will be significantly changed by including a sixth score of 100 but the median will not

15. a mode of 30 and a mean of 80

16. a mode of 30 and a median of 80

17. a mean of 30 and a mode of 80

18. a mean of 30 and a median of 80

19. a median of 30 and a mode of 80

20. a median of 30 and a mean of 80

1. We must have 60 as the middle score and a total of 250 points otherwise.

2. Again, we must have 60 as the middle score and a total of 250 points, with high score minus low score smaller than before.

3. We must have 50 as the middle score and a total of 300 points otherwise.

4. Again, we must have 50 as the middle score and a total of 300 points, with high score minus score score bigger than before.

5. 50, 50, 60, x, y so long as both x and y 60 or higher

6. We must have a pair of 50's, no other repeated scores, and a total of 300 overall.

7. 50, 50, 53, 60, 60

8. 45, 50, 50, 60, 60

9. This is not possible. We can't have two 20's, two 30's, and yet have 35 be the middle score size-wise.

10. 0,0,0,0,0

11. 0,0,0,0,10

12. something like 60, 70, 80, 100, 100 is good

13. now something like 80, 80, 80, 100, 100 is good

14. 0,0,0,0,0

15. This is impossible. We must have (at least) two 30s but also have a total of 400. That means the remaining three numbers in our set must total 340, yet the highest number allowed is only 100, so the best we can get is a total of 300 from the three remaining numbers in our set.

16. 30, 30, 80, x, y so long as both x and y are 80 or higher

17. This is impossible. We need (at least) two 80s, yet a total of only 150. The 80s alone make the total go over 150.

18. This is impossible. We need an 80 and two more numbers that high or higher, yet a total of only 150. The 80 and higher numbers make a total of at least 240, so that's well past what we were allowed.

19. x, y, 30, 80, 80 so long as both x and y are 30 or smaller

20. This is impossible. We need a score of 30 and two others numbers that small or smaller, yet a total of 400. The biggest total we can make here comes from using 30,30,30,100,100, and that can only give us a total of 290.