

Answer Key: Central Tendency

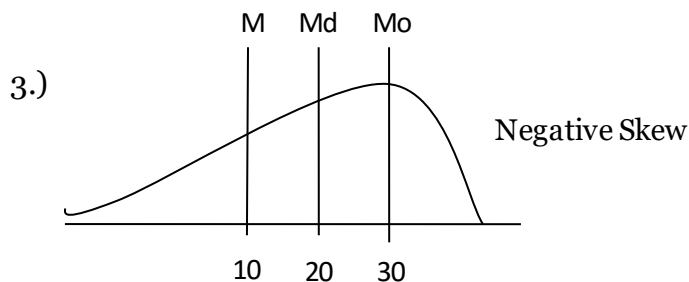
1.) a. $M_{TOTAL} = \frac{\Sigma X_1}{N_1} + \frac{\Sigma X_2}{N_2} = \frac{8+4}{2} = 6$

b. For the second problem, it's tempting to do what we did in the first problem-- just find the two group averages (4 and 8) and then take the average of those averages ($4+8/2 = 6$). This works for the first problem, because both groups have the same sample size. However, for the second problem, groups have different sample sizes. So, they must be "weighted" properly in the transformation. To find the overall average of two groups with different sample sizes, we must remember what the "average" in such a case would be. That is, it is the sum total of **ALL** of the scores ($\Sigma X_1 + \Sigma X_2$) on the test divided by the total number of scores ($N_1 + N_2$). We know the total number of scores [$(\Sigma X_1 = 3) + (\Sigma X_2 = 7)$] and the group averages ($M_1 = 4, M_2 = 8$). We can use these numbers to figure the numerator and the denominator for the problem.

b. $M_{TOTAL} = \frac{\Sigma X_1 + \Sigma X_2}{N_1 + N_2} = \frac{(3*4) + (7*8)}{3+7} = \frac{12+56}{10} = \underline{\underline{6.8}}$

c. $M_{TOTAL} = \frac{(7*4) + (8*3)}{7+3} = \frac{28+24}{10} = \underline{\underline{5.2}}$

2.) Your answer



4.) Your answer

5.) 2 2 3 3 4 5 5 5 6 7 8 10 12 17 28

Mode=5 median=5 mean= 7.8

The distribution of errors is positively skewed.

6.) Your answer

7.) a. mode b. median c. mean

8.) Your answer

9.)	$\Sigma (x*f)$	
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	10	Median = 8.5
	81	Mode = 9
	40	
	21	Mean = $\frac{163}{20} = 8.15$
	6	
	5	
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	$\Sigma X = 163$	

We can't just sum the scores (the x column) because as the frequencies indicate (the f column), some of the scores in our distribution occur more than once. By multiplying each score by its frequency—before summing—each score is then properly weighted in the calculations.

HINT: If working with the frequency column is proving difficult, create a new table without that column. Just make sure that you write each x value the correct number of times that it occurs. You will have a longer column, but for a lot of people, this makes it easier to understand and identify means, medians and modes.