

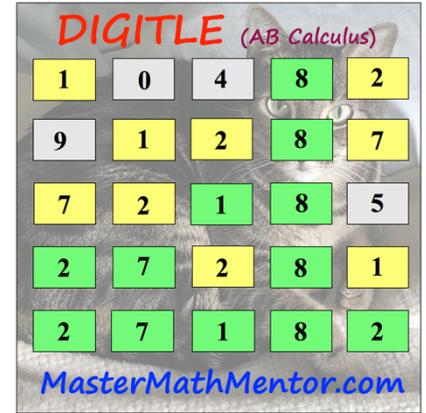
DIGITLE – SAT/ACT

Puzzle 517 – Distributions / Center / Spread

Directions: The first 5 problems have single digits answers. The 6th problem has a 5-digit answer (counting leading zeros if present). You have a choice: solve the easier single-digit answer problems or tackle the more difficult 5-digit answer. Once you have done that, attempt to solve the puzzle by entering the following url on your computer, tablet, or phone:

<https://mastermathmentor.com/mmm/digitle.ashx>.

The correct puzzle answer will be the digits of your answer(s) scrambled. Use the following interpretation. You get 6 tries.



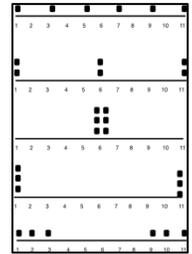
Green : the digit is in the answer and is in the correct spot.

Yellow: the digit is in the answer but is not in the correct spot.

Grey : the digit is not in the answer.

Single Digit Answers:

1) At 6 different times of a 5-day week, the floor that an office elevator is on is noted. The data is shown in the 5 graphs to the right. Office manager Tom wants the data presented with the smallest standard deviation on top while his partner Dick wants the data presented with the largest standard deviation on top. If a and b represents the number of positions a graph needs to shift to make Tom or Dick happy respectively, find the value of $a + b$.



2) Consider the data set $S = \{-10, -5, 0, 5, 10\}$. For S , we compute the mean, the median, the standard deviation and the range. Suppose A adds 10 to every number in S . B doubles every element in S and C is the absolute value of every element in S . We compute the mean, median and standard deviation for sets A , B , and C . Circle all the computations that increase from S and count the number of circled items.

A	Mean	Median	S.D.	Range
B	Mean	Median	S.D.	Range
C	Mean	Median	S.D.	Range

3) Mrs. Castor is teaching a college seminar. A quiz with 20 points had a mean of 14 and a standard deviation of 1. It was found that on problem 8 worth 2 points, everyone made the same mistake. It was later found that it was Mrs. Castor who had made the mistake and each of the student's scores was adjusted. What is the standard deviation of the corrected exam?

4) Jack is chairing a business meeting and finds that his some of his associates arrive early, on-time, or late. The data is as follows with negative numbers as early arrivals and positive numbers as late arrivals. He wants to summarize this data but is unsure whether to use the mean, median, mode, or range. So he takes them all and averages them. What is the result? $\{-7, -1, -1, -1, 2, 4, 10, 11, 12, 13, 13\}$.

5) A tropical island monitors its excess or shortage of rain based on averages over the past 11 years. The last 10 -year data is $\{-3, -2, 0, -1, 5, 5, 1, 2, -2, -5\}$ but the first year is missing. Statisticians calculate the standard deviation for the data they have. If the first-year data is suddenly found, what is its value if the standard deviation is impacted as little as possible?

5-Digit Answer:

6) A cruise ship has 600 passengers. Passengers are awarded points based on the number of cruises they have taken with this company. They receive 10,000 points for each cruise they have taken including this one. The mean number of points, median number of points, and mode are found for the data shown to the right. Find the average of these figures.

Cruises	Passengers
1	269
2	101
3	93
4	81
5	39
6	14
7	2
8	0
9	0
10	1