Average

- If the average of 5 consecutive integers is 12, what is the average of the even only integers?
  - 10
  - 12
  - 13.5
  - 18
  - 36

Average | Answers

- First, find the consecutive integers. Since there are 5, there may be either 2 or 3 even integers. These integers are 10, 11, **12**, 13, 14. The average of the even integers is 12 as well (10+12+14 = 36. Divide 36 by 3 and you will get 12).
- **The correct answer is B.**

Average 2

- The average of 10 consecutive integers is 12. Then, 9 is deducted from the first consecutive number, 8 is deducted from the second, 7 is deducted from the third, and so on until the last number which remains unchanged. What is the new average?

- A)55 B)50 C)6 D)7.5 E)7

Average 2 | Answers

- You don't need to find each of the numbers. Instead, you have two options, you can deduct the average of numbers between 0 and 9 (there is a trap though, there should be 10 numbers rather than 9 and the average is 4.5, not 5) or you can find the sum of consecutive integers (10*12=120) and subtract the sum of integers from 0 to 9 (45) and divide the result (75) by 10.
- **The correct answer is E. 7.5**

Mean

- How to find the Mean?

Mean

- Arithmetic Mean = Average = $\frac{Sum\ of\ elements}{\text{number of elements}}$

Median

- How to find the Median?

Median | Answers

- Arrange all numbers in an order from the smallest to the largest. **The Median** will be the middle number. If there is an even number of elements, **the Median** will be the average of the 2 middle numbers

Mode

- How to find the mode?

Mode | Answers

- The Mode of an array is the number that appears most often. For example, in an array 1,2,3,3,4 – **the Mode** is 3. It appeared twice. In the array 1,2,3,3,4,4 – **the Mode** is 3 and 4 (there can be more than one mode).

Range

- How to find the Range?

Range | Answers

- **Range** is the difference between the smallest and largest elements of an array. If you have to find more than just range, it is always a good idea to rewrite the elements in an creasing order

Standard Deviation

- How to find the Standard Deviation?

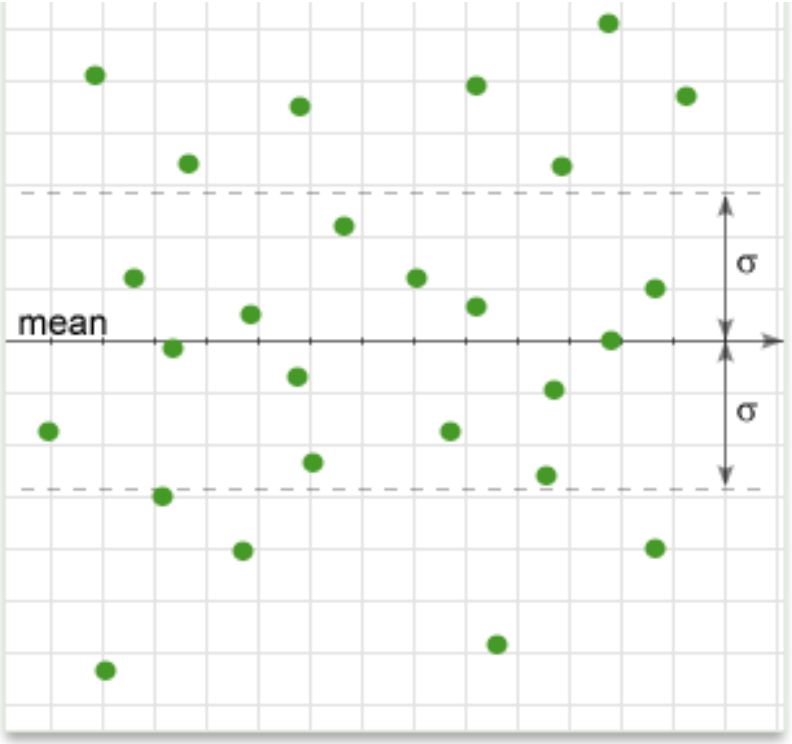
Standard Deviation | Answers

- You won't have to calculate SD on the GMAT but you need to understand the concept of SD
- Standard Deviation measures how spread out the members of the array are. To find the Standard Deviation:
  - Find the mean
  - Find the difference between each number and the mean
  - Square each of the differences
  - Find the average of the squared differences
  - Take a square root of the average

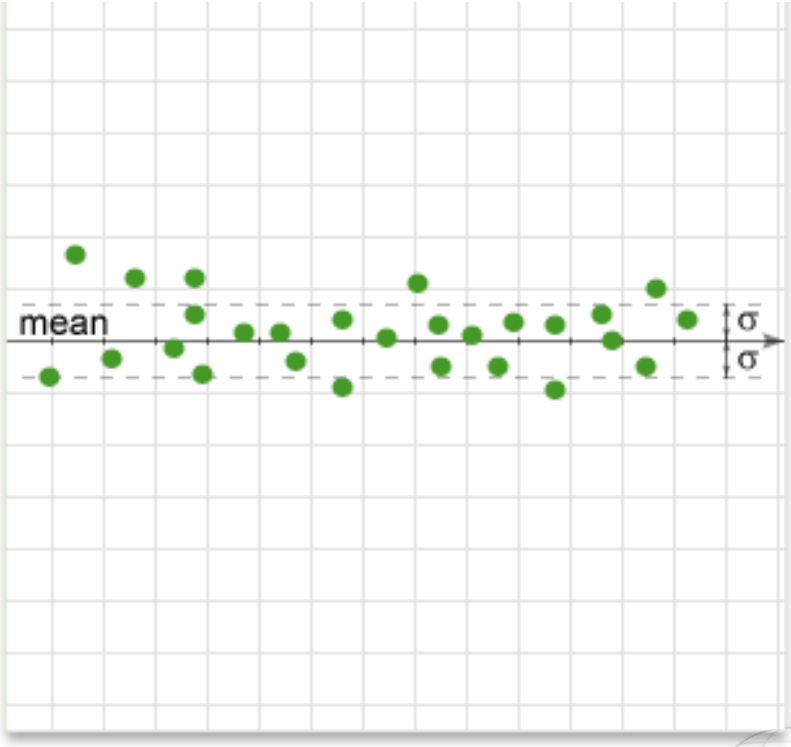
Standard Deviation 2

- Which of the sets has a higher standard deviation?

Set A

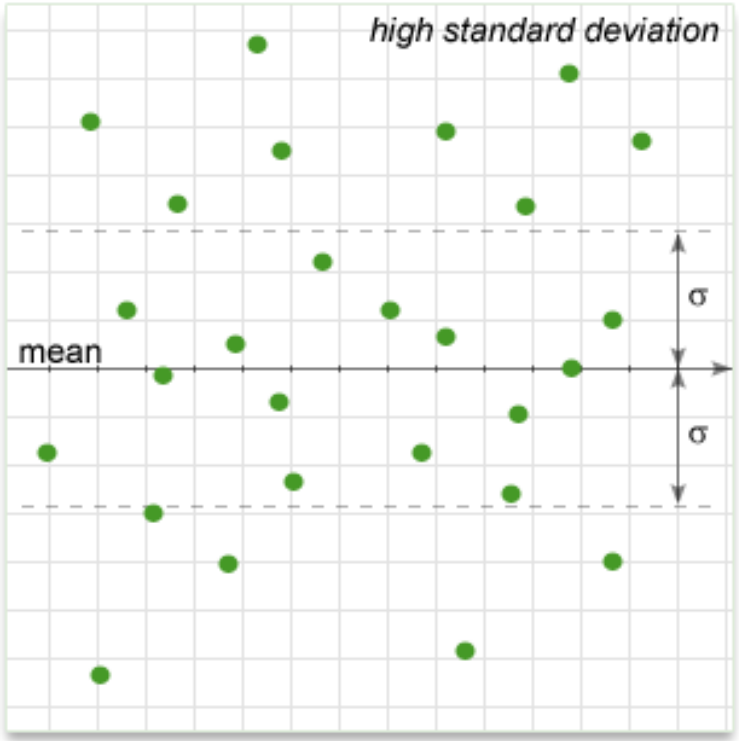


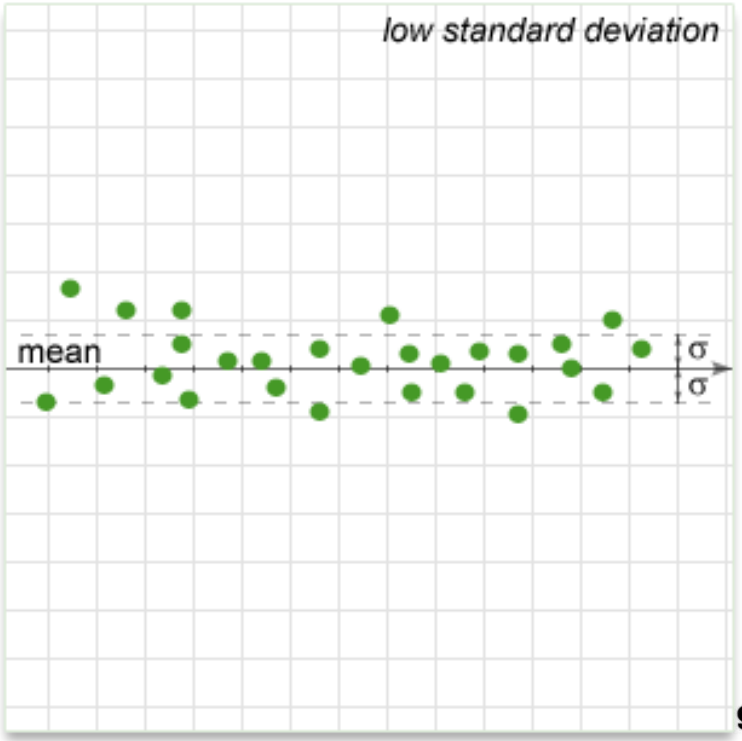
Set B



Standard Deviation 2 | Answers

- Set A has the higher Standard Deviation because the elements are distributed further from the mean





Standard Deviation 3

- What is the fastest way to estimate standard deviation (without calculating it)?

- There is a set {67,32,76,35,101,45,24,37}. If we create a new set that consists of all elements of the initial set but decreased by 17%, what is the change in standard deviation?

Standard Deviation 3 | Answers

- We don't need to calculate as decrease in all elements of a set by a constant percentage will decrease the standard deviation of the set by the same percentage (the average is decreased by 17% as well as the difference between average (mean) and all elements or their squares. Thus the decrease in standard deviation is 17%.
- You can always try to model a set of 3 numbers
- P.S. the 17% has been verified in Excel

Standard Deviation 4

- What is the Standard Deviation of a set of consecutive even integers?
  (1) There are 39 elements in the set.
  (2) the mean of the set is 382

Standard Deviation 4 | Answers

- Before reading Data Sufficiency statements, what can we say about the question? What should we know to find standard deviation? "consecutive even integers" means that all elements strictly related to each other. If we shift the set by adding or subtracting any integer, it does not change the standard deviation. One thing we should know is the number of elements in the set, because the more elements we have the broader they are distributed relative to the mean. Now, look at DS statements, all we need it is just first statement. So, A is sufficient.

Standard Deviation 5

- Set A consists of 19 integers with mean 4 and standard deviation of 3. If a new set B is formed by adding 2 more elements to the set A, what two elements will decrease the standard deviation the most?
  - A) 9 and 3
  - B) -3 and 3
  - C) 6 and 1
  - D) 4 and 5
  - E) 5 and 5

Standard Deviation 5 | Answers

- **Solution:** The closer to the mean, the smaller the standard deviation, and therefore, the greater the decrease in standard deviation. D has 4 (equal to the mean) and 5 (differs from mean only by 1).
- All other options have a greater deviation from the mean
- **Answer: D**