

Number theory

Name: _____

I had a list of eight numbers. Unfortunately the list is gone. I do remember the following about my set of numbers.

1. The range of the numbers in my list is 93.
2. One of the numbers in my list is a cube number less than 10.
3. The average of the numbers in my list is 40.
4. The mode of the numbers in my list is the sum of the first two perfect numbers.
5. The median of the numbers in my list is 29.5
6. The largest number in my list is the smallest 3-digit palindrome.
7. The sum of the digits of one of the numbers in my list is equal to the square root of the same number.
8. One of my numbers is an abundant number between 21 and 25.
9. At least one of the numbers in my list is a square number.

You may not need all the clues to find the answer, but make sure your answer fits all the clues.

Be very clear about the process and order you used to find my number.

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==== Some Reminders =====

- **Divisors of a number:**
 - **Perfect number** - A positive integer for which the sum of all its divisors, excluding itself, is EQUAL to the number. 6,28,496,8128..
 - **Abundant number** – A positive integer for which the sum of all its divisors, excluding itself, is larger than the number. 12,18,20,..
 - **Deficient number** – follows from the abundant number definition.

- **Palindrome** – can be read the same way backward: Dad, Race car.
 - Rats live on no evil star.
 - Neil, a trap! Sid is part alien!
 - Step on no pets.

- **Statistical characteristics:**
 - **Mean (Average)**
 - **Median** – A median is described as the number separating the higher half of a sample from the lower half. In other words: Given ordered list of numbers, it is either the middle number (if there is an odd number on the list) or the average of the middle two (if there is an even number on the list).
 - Median of (1,9,2,3,3,7, 10) → 1,2,3,3,7,9,10 → 3
 - Median of (1,9,5,10) → 1,5,9,10 → (9+5)/2 = 7
 - **Mode** – Number most often repeated. If all are repeated once, no Mode.

=== =End=====