The sum of 49 consecutive integers is 7^5. What is their median?

Let the integers be $n, \ldots, n+48$

Their sum is $\sum_{k=0}^{k=48} (n+k) = 49n + \frac{48 \times 49}{2}$

$$= 49n + 1176$$

We have

$$49n + 1176 = 7^5$$

$$\Rightarrow \quad 49n = 15631$$

$$\Rightarrow \quad n = 319$$

The median of a list of 49 integers is the 25^{th}, which is

$$319 + 24 = 343 = \boxed{7^3}$$

Note that since the list of numbers is in arithmetic progression, we have

$$\text{median} = \text{mean} = \frac{7^5}{7^2} = 7^3$$