

Of the following five numbers, which ones can be the size of a finite field? Explain briefly.

1. 125 – yes
2. 126 – no
3. 127 – yes
4. 128 – yes
5. 129 – no

If the number can be gotten by taking a prime number to a power, then it can be the size of a finite field i.e. $128 = 2^7$. Because 2 is prime, and we raise it to a power, we get 128.