



11. A Mersenne prime is a prime of the form $2^p - 1$, where p is also a prime. One of the following is **not** a Mersenne prime. Which one is it?

- A $2^2 - 1$ B $2^3 - 1$ C $2^5 - 1$ D $2^7 - 1$ E $2^{11} - 1$

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11. E First note that the exponent in each of the five options is prime, so we need to see which of the five numbers is not prime. By direct calculation the numbers are 3, 7, 31, 127 and 2047. Only the last number is not prime, as $2047 = 23 \times 89$.