(1) Using the method from class write a table of all prime numbers $\leqslant 100$. Explain why you only need to cross out the numbers divisible by $2, 3, 5$ and 7.
(2) Let p_1, p_2 be distinct primes. Using the Fundamental Theorem of Arithmetic prove that a natural number n is divisible by $p_1 p_2$ if and only if n is divisible by p_1 and n is divisible by p_2.
(3) Prime "triplets" are triples of prime numbers of the form $n, n+2, n+4$.

    Find all prime triplets.

    Hint: Think (mod 3).
(4) (a) Find all possible values of $2^k \pmod 6$.
    (b) Find all possible values of $k^2 \pmod 6$
(5) Find the rule for checking when an integer is divisible by 13 similar to the rule for checking divisibility by 9 done in class.
(6) Prove that if $m > 1$ is not prime then there exist integers a, b, c such that $c \not\equiv 0 \pmod m$, $ac \equiv bc \pmod m$ but $a \not\equiv b \pmod m$.