1. Using Euclidean Algorithm find integers α and β such that $\gcd(18, 127) = \alpha \cdot 18 + \beta \cdot 127$.
2. Using Euclidean Algorithm find integers α and β such that $\gcd(33, 251) = \alpha \cdot 33 + \beta \cdot 251$.
3. Prove, that $5n + 3$ and $7n + 4$ are relatively prime for any positive n.
4. Find primes p, q if $n = p \cdot q = 414847$ and $\phi(n) = 413280$.
5. Find an integer a such that $a \equiv 4 \pmod 6$ and $a \equiv 5 \pmod{35}$.
6. Find an integer a such that $a \equiv 4 \pmod 7$ and $a \equiv 1 \pmod{19}$.
7. Find an integer a such that $a \equiv 38 \pmod{103}$ and $a \equiv 81 \pmod{83}$.
8. Find an integer a such that $a \equiv 4 \pmod 6$ and $a \equiv 5 \pmod{35}$.
9. Find an integer a such that $a \equiv 4 \pmod 7$ and $a \equiv 1 \pmod{19}$.
10. Find an integer a such that $a \equiv 38 \pmod{91}$, $a \equiv 81 \pmod{83}$ and $a \equiv 3 \pmod{95}$.