NAME: (print!) ____________________________

E-MAIL ADDRESS: (print!) ____________________________

1. For the following primes \( p \) and \( q \) (let \( n = pq \)) public key \( e \), and encrypted message \( c \)

   (i) Check that \( e \) is an OK key, i.e. that it is coprime to \( \phi(n) \).

   (ii) Find the deciphering key, \( d \), such that \( de \equiv 1 \pmod{\phi(n)} \)

   (iii) Suppose Alice sent you the encrypted message \( c \). Check that this is an OK message (coprime to \( n \)), and if it is find her original message?, \( m \)

\[
p = 5, q = 7, e = 5, c = 9.
\]