Q8. RSA. Use RSA algorithm to answer the following questions. You should use decimal numbers instead of binary numbers in this question. Correct solution is not unique.

(1) Select proper values of p and q, larger than 10 but less than 20. Then, calculate n and z.

(2) Select proper values of e and d. Then, encrypt the last two digits of your student number.

(3) Decrypt your answer for Part (2), and verify if the last two digits of your student number can be recovered.

(4) Trudy (the intruder), eavesdropped on the encrypted number and the public key (n, e), how can she decrypt the number in this example? In reality, p and q value are very large numbers; if Trudy eavesdropped on the encrypted number and the public key, can she still decrypt the number? Why or why not?