Name: \_\_\_\_Demetrius Johnson 3-30-2021\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

*No calculators are allowed.* Show your work. The points for each problem are indicated. Problems with incomplete work may receive partial, or no credit.

***COs: [No direct COs]***

**Points: \_\_\_\_\_\_\_\_\_\_\_\_\_\_ / 20**

1. [4 pts] Using the given key for each part, encrypt or decrypt the message assuming the Caesar cipher style substitution cipher is being used. Assume spaces remain spaces.  
   1. Encrypt the message: “u r welcome”, key = 4
   2. Decrypt the message: “dwwdfn wrpruurz qrrq”, key = 3
2. [16 pts] Solve the following problems using the definition and equation for modulus.

*Reminder:* ***x = cq + r*** *and the value* ***r*** *must always be positive!*

* 1. 25 mod 3

* 1. 17 mod 9

* 1. -40 mod 9

* 1. -12 mod 5