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| HOME WORK |  |
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|  | Friday, October 23,20204.1,4.2 |
|  | 2020380029RAIHAN MD RAKIBUL ISLAM |

* **4.1**

5. Show that if a | b and b | a, where a and b are integers, then a = b or a = −b.

**Answer:**

If a | b and b | a, there are integers

c and d such that b = ac and a = bd.

Hence, a = acd.

Because a = 0 it follows that cd = 1.

Thus, either c = d = 1 or c = d = −1.

Hence, either a = b or a = −b

9. What are the quotient and remainder when

b) −111 is divided by 11?

**Answer:**

a = −111

d = 11

a = − 111 = − 121 + 10 = (−11) \*11+10 = (−11) d + 10

quotient, q = − 11, remainder, r =10

d) 1001 is divided by 13?

**Answer:**

a = 1001

d = 13

a = 1001 = 77\* 13 = 77\*13+ 0 = (77) d + 0

quotient, q = 77, remainder, r = 0

f) 3 is divided by 5?

**Answer:**

a = 3

d = 5

a = 3 = 0 \* 5 + 3 = 0 + 3 = (0) d + 3

quotient, q = 0, remainder, r = 3

h) 4 is divided by 1?

**Answer:**

a = 4

d = 1

a = 4 = 4 + 1 = 4\*1+ 0 = (4) d + 0

quotient, q = 4, remainder, r = 0

* **4.2**

26. Use Algorithm 5 to find 1 mod 645.

**Answer: 1**





