

## Homework 4

---

### Task 1 - Encrypt & MAC (15 points)

---

(a)

(b)

(c)

---

**Task 2 - Authenticated Encryption (15 points)**

---

(a)

(b)

---

**Task 3 - Set Commitments (10 points)**

---

(a)



---

**Task 4 - Number Theory & Groups (10 points)**

---

(a)

(b)

(c)