**Homework 3  
2022-2023 3rd Trimester   
Due on Wednesday June 7, 2023, 11:59 p.m. via Blackboard.**

If you do not have the textbook, use the following link to download it

Do textbook problems:

* Problem 8.4 (Page 263)
* Problem 8.11 (Page 264)
* Problem 8.18 (Page 265)
* Determine the following:
  + Ø(49)
  + Ø(144)
* How many primitive roots Modulo 11? Show your answer step by step.
* If you know that 3 is a primitive root modulo 17, find the other primitive roots modulo 17.
* Use Rabin–Miller primality test to show that 137 is prime?
* **(Graduate Students ONLY) answer the following 2 questions:** 
  + Use Fermat’s primality test to show that 7 is prime?
  + Use AKS primality test to show that 5 is prime?
* Problem 9.2 (a and c only) (Page 292)
* (**Optional**) Problem 9.3 (Page 293)