Week 8
Term 1
2015

Learning Brief

SME1: Number Theory, Graphs and Networks

Goals

By the end of this week, you should be able to:

- Define binary operations
- Carry out any given binary operation
- Define Group
- Show that a given (G,*) is (or is not) a Group
- Define and Abelian Group

By now you should now these:

- gcd, lcm using prime factors
- Cayley's Table
- Euclidean Algorithm
- Congruence

Use this as checklist!
Got a question = see Sheikh

Theoretical Components

1. Go through the worked examples from Chapter 4 (available in Google Classroom under About/Resources/WEEK08)
2. Notes on Binary Operations
   http://www.emathzone.com/tutorials/group-theory/binary-operations.html
3. Types of Binary Operations
   http://www.emathzone.com/tutorials/group-theory/types-of-binary-operations.html
4. Identity and Inverse:
   http://www.emathzone.com/tutorials/group-theory/identity-and-inverse.html
5. Algebraic Structures:
   http://www.emathzone.com/tutorials/group-theory/algebraic-structure.html
6. More notes and examples here:
   http://www.emathzone.com/tutorials/group-theory/definition-of-group.html
7. Abelian Groups:
   http://www.emathzone.com/tutorials/group-theory/abelian-group-or-commutative-group.html
8. Order of a Group:
   http://www.emathzone.com/tutorials/group-theory/order-of-a-group.html

READ THROUGH AND MAKE YOUR NOTES. THESE WILL BE DISCUSSED IN CLASS.

Practical Components

1. Refer to Chapter 4 (available in Google Classroom under About/Resources/WEEK08)

   Exercise 4A – all
   Exercise 4B – all
   Exercise 4C – all
   Exercise 4D – as many.

Investigation

None this week. You will instead use the time to prepare for the Mid-Term Test. The test will include questions from concepts studied from Weeks 1-8.

Q/F/O

Print the quiz (available in Google Classroom under About/Resources/WEEK08). Answer all questions and get it marked by Sheikh.