

# NOTES FOR NIGHT 4

## LESSON:

Familiarising students with properties of graphs.

**Resources:** A3 sheet with graphs labelled A to Z (in booklet)

Some questions that can be asked:

- Which graphs are:
  - Surjective
  - Injective
  - Bijective
  - Functions
  - Relations
  - Increasing/decreasing
  - Polynomials
  - periodic
- Which graphs have:
  - One/two/three real roots
  - One real root and 2 complex roots
  - No real roots
  - Asymptotes
  - Local max/min
- Which graph(s) can be got by reflection of another graph in the:
  - x-axis
  - y-axis?

## LESSON:

What is a relation?

Which relations are functions?

Types of functions:

- Injective
- Surjective
- Bijective

When does a function have an inverse?

Exercise set D, Questions 1 to 4

## LESSON:

Revisit function types, during other parts of the course, i.e. when studying polynomials, exponential functions etc.

Exercise set D, Questions 5 to 7

## LESSON:

Domain and Range of a function

Exercise set D, Question 1

## LESSON:

Using calculus to examine types of functions.

Exercise set F, Question 1 and 2

Finding the inverse of a function

Exercise set F, Question 3

## LESSON:

**Resources:** A3 page of graphs, labelled transforming functions (Not in booklet)

Transformation of functions, for a broader understanding of functions.

Fill in the tables from 1 to 12 in the booklet and plot these graphs, to analyse what happens.