

TUTORIAL for CLASS 1S2 — ALGEBRA

SESSION WEEK: 17 SECOND HALF YEAR WEEK: 3 Date: THURS 8/2/07

Work carried over from last week:

See Week 16 Tutorial sheet.
 The use of a contradiction argument in \mathbb{N}^2 is very important. So too in \mathbb{N}^2 13.

This week's Work:

MAIN EFFORT THIS WEEK — VERY IMPORTANT
 ON PROOF BY INDUCTION as follows:

Sheet 551. Alg. Exs 1:

\mathbb{N}^2 15 a, b, c, e, g, i. [You can do the other parts too]
 Also \mathbb{N}^2 16.

Bring (among other things) with you to the Tutorial the following:

This Sheet, Sheets 651, 652, 653.

HOMEWORK

(for marking) to be handed in as directed before this Tutorial:

① Prove by induction that \forall integers $n \geq 1$,

$$\sum_{r=1}^n r(r+3) = \frac{1}{3} n(n+1)(n+5).$$

② Prove by a contradiction argument that $3+\sqrt{2}$ is irrational. [You may assume that $\sqrt{2}$ is irrational.]

Notice:

You should look at Old Degree Exam Papers on the Student Website to see other induction questions.

ZSM

2/2/07