

Introduction to Algebra Tutorial Week 3 Handout

02/10/17

1 Introduction

Please hand in the solutions for the following exercises on sheet 3: Q1(d)(e)(f), Q2(b)(c), Q3(b)(c), Q4(b)(c), Q5, Q6(c)(d), Q7(a)(b).

2 Comments on solutions to Sheet 2

2.1 Question 2

A Venn diagram is not a formal proof of a mathematical statement. It is not sufficient to draw two Venn diagrams and say that they give the same shaded area in both cases. You must prove this formally by showing that, for example, $(A \cup B) \cap C \subseteq (A \cap C) \cup (B \cap C)$ and $(A \cap C) \cup (B \cap C) \subseteq (A \cup B) \cap C$.

2.2 Question 3(d)

This question is a bit subtle. Many people only checked one side of the implication and wrote down ‘True’ as a result. What some people did was assume that $x^2 \geq 2x$ and then take the square-root of both sides. This is not possible since the square-root is multivalued: x^2 has two square roots: x and $-x$. Hence one cannot conclude that $x \geq 2$. Indeed, just take $x = -1$ and you will see that it is false.