Abstract Math - Day 1 Worksheet

Jonathan Kao

May 21, 2020

Problem Set

1. The points (-1,1), (2,-1), and (3,0) lie on a line

2. If x is an integer, then $x^2 \geq x$

3. If x is an integer, then $x^3 \geq x$

4. For all real numbers x, $x^3 = x$

5. There exists a real number x such that $x^3 = x$

6. $\sqrt{2}$ is an irrational number

7. For integers x, y, z, if $x + y$ is odd and $y + z$ is odd, then $x + z$ is odd

8. If x is an integer, then x is even or x is odd

9. If x is an integer, then x cannot be both even and odd

10. Every even integer greater than 2 can be expressed as the sum of two prime numbers

11. There are infinitely many prime numbers

12. For any positive real number x, there exists a positive real number y such that $y^2 = x$

13. Given three distinct points in space, there is one and only one plane passing through them