

A warmup

For each statement below, try to figure out what it is saying, and determine whether the claim is true or false.

1. If x is an integer, then $x^2 \geq x$.
2. There are infinitely many prime numbers.
3. The sum of any two rational numbers is rational.
4. The sum of any two irrational numbers is irrational.
5. For any positive real number x , there exists a positive real number y such that $y^2 = x$.
6. There exists a positive real number y such that for any positive real number x , $y^2 = x$.
7. $2 + 3 = 8$.
8. If $2 + 3 = 8$, then $3 + 6 = 5$.
9. If $2 + 3 = 5$, then $3 + 6 = 5$.
10. The product of any two odd integers is odd.
11. If x is an even integer, then x^2 is an even integer.
12. There is one and only one straight line approximation that best fits a given scatterplot.

Warmup exercises

Try to prove each of the following (true) propositions:

1. The sum of any two odd integers is even.
2. If a rational number is added to an irrational number, the result is an irrational number.
3. There exist integers l, m, n , such that $l^2 + m^2 = n^2$.