

MAT 200: HOMEWORK 3

DUE TU, JUNE 21

In the problems involving real numbers, you can use all the properties of real numbers stated as axioms or proved in the textbook or in class, but nothing else.

1. P. 55, problem 17
2. Let x be a real number. Prove $(x^2 + x - 2 > 0) \iff (x < -2) \text{ OR } (x > 1)$
3. P. 73, problem 6.7
4. P. 87, problem 7.3 (i) – (iv)
5. P. 117, problem 11 (iv)–(vii)
6. P. 117, problem 12
7. Write the following statements using logic connectives and quantifiers:
 - All mathematicians love music
 - Some mathematicians don't like music
 - No one but a mathematician likes music
 - No one would go to John's party unless he loves music or is a mathematician

Please use the following notation:

P – set of all people

$M(x)$ — x is a mathematician

$L(x)$ — x loves music

$J(x)$ — x goes to John's party