

MATH 133 PROBLEM SET 2

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ABSTRACT. Due Friday, February 3.

Question 1. Which of the following two sets has the greater cardinality:

The set A of all perfect cubes smaller than 200.

The set B of all numbers between 1 and 200 (inclusively) divisible by 11.

Question 2. What is the intersection, the union, and the symmetric difference of the sets A and B in the previous question?

Question 3. Prove that the number 29 is prime.

Question 4. Prove that the number 1001 is NOT prime.

Question 5. Prove that not all odd numbers are prime.

Question 6. Prove that some even numbers are prime.

Question 7. Prove by induction that there are n even numbers between one and $2n$ (inclusively).