

## Problem of the Week-2: Rational or Irrational?

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Determine whether the following statements are True or False. Provide a thorough justification for each.

1. The product of a rational number with an irrational number is irrational.
2. The product of a non-zero rational number with an irrational number is irrational.
3. The sum of an irrational number and a rational number is irrational.
4. The sum of two irrational numbers is irrational
5.  $\sqrt[3]{3}$  is irrational.

As always, explain and justify your answer.

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Posting Date 9/10/11. Submit solutions to Noah Aydin, Mathematics Department, RBH 319 (e-mail or hard-copy, but hard copy submissions must include a time stamp) by 4 pm on 9/23/11.